CHAPTER 4 HOBART'S GROCERIES OUTLETS : LOCATION, SCALE AND COMPETITION

SYNOPSIS

MAIN CHAPTER HEADINGS

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	Interpretation of the Gross Relations of Scale and Location.
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	Description of the Gross Relations of Outlet Location by Regional Market and Outlet Competitive Characteristics.
	Interpretation of the Gross Relations of Outlet Location and Outlet Competitive Characteristics.
PRIMARY AND SECONDARY RELATIONS - LOCATION, SCALE AND COMPETITION	Scale, Location and Self-Service Groceries Retailing.
	Competition, Location and Self-Service Groceries Retailing.
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Introduction

The attempt to account for the locational structure of groceries retailing in Hobart is initiated by testing hypothesized relations between the location, size and competitive characteristics of retail establishments. First, the gross relations are examined between the location and the size of Hobart's groceries outlets. Next, the overall relations between the locations and competitive characteristics of the outlets are studied; this leads into a discussion of the market structures and the means of competition in groceries retailing. Finally, more complex relations are examined between outlet location, size, competitive characteristics and other variables, such as those describing outlet cost structures, the socio-economic characteristics of customer households, and customer travel patterns. Conclusions are then reached concerning the wider theoretical and empirical implications of the analysis.

OUTLET LOCATION AND OUTLET SCALE

Definitions and Measures of Scale

The scale, size or magnitude of the retail outlet - as of any other sort of production unit - is most often defined conceptually by the economist as its gross or net output per unit time period.[1] Workers in other disciplines add space occupied as a further component of size.[2] In order to test hypothesized relations between outlet location and size, data were used for the following measures of output and space occupied:

Output

(i) average weekly takings for the last three months ($A);

(ii) projected annual takings (equal to the average weekly takings for the last three months x 52) ($A);

(iii) average total number of manhours worked per week for the last three months (attributing an irregular part-time worker with half the total hours worked of a full-time worker);

(iv) average total number of workers for the last three months (including self-employed entrepreneurs, and counting an irregular part-time worker as half a full-time worker);

(v) average number of full-time workers for the past three months, and average number of regular part-time workers for the last three months;

Space Occupied

(vi) total ground floor area (sq. ft.);

(vii) ground floor area of selling space (sq. ft.) (ground floor area used for other than office or storage purposes);

(viii) street frontage (ft.) (the length of the perimeter of the shop premises adjacent to a footpath).

These measures were selected because they have been widely used as appropriate indicators of output and space occupied.[3] However, they were not only selected because there was considerable precedent for their use, but because they were measures for which reasonably accurate data were most readily obtainable in Hobart.

The deficiencies of these measures were of two kinds. Firstly, the measures were complementary approximations, but only approximations, of the concepts of output or space occupied. The measures concerned with takings and employment reveal the output of the retail establishment by reflecting the complementary income- and labour-generating characteristics of that output. The measures concerned with ground floor area and frontage reveal the qualities of space occupied by the retail establishment by reflecting the complementary characteristics of the total quantity of the space occupied for retailing purposes, and the total quantity of the street access and display space occupied.[4]

TABLES 4.1 - 4.3

TABLE 4.1

SUMMARY OF THE RESULTS OF ANALYSIS OF VARIANCE TESTS OF THE ASSOCIATION OF OUTLET SCALE WITH (1) OUTLET LOCATION AND (2) TYPE OF OUTLET AND OUTLET LOCATION

SCALE VARIATE	(ALL) GROCERIES OUTLETS BY BUS. TYPE (SMGRO GEN.)	LOCN. IN BA TYPE (N,J)	LOCN. IN BA CLASS (N1-J4)	LOCN. IN REGNL. MKT.	SUPERMARKETS BY LOCATION IN B.A. TYPE (N,J)	B.A. CLASS (N1-J4)	REGNL. MKT.	GROCERIES BY LOCATION IN B.A. TYPE (N,J)	B.A. CLASS (N1-J4)	REGNL. MKT.	GENERAL STORES BY LOCATION IN B.A. TYPE (N,J)	B.A. CLASS (N1-J4)	REGNL. MKT.
OUTPUT													
1. Mean weekly takings ($A)	/	-	x	-	-	-	-	-	-	-	-	-	x
2. Projected annual takings ($A)	/	-	x	x	-	-	-	o	o	-	o	x	(x)
3. Average total manhrs/wk	/	-	-	-	-	-	-	-	-	-	-	/	-
4. Total number of workers	/	-	x	x	-	-	-	-	-	o	-	-	o
5. Number of part-time workers	/	-	x	/	-	-	-	-	-	-	o	x	(/)
6. Number of full-time workers	/	-	x	-	-	-	-	-	-	o	-	-	o
SPACE OCCUPIED													
7. Total ground floor area - sq.ft.	/	-	x	x	-	-	-	-	-	-	x	(/)	(/)
8. Floor area of selling space "	/	-	o	o	-	o	-	-	-	x	-	x	x
9. Frontage - ft.	/	/	/	/	-	-	-	-	-	-	(/)	(/)	o

/ F significant at 1% level) Strong
x F significant at 5% level) relation
o F significant at 10% level
\- F not significant at 10% level
(/) (Form of relation for this business type separately
(x) (is the same as that for all groceries outlets

Sources: Statistical Appendix 4 - Tables 4.1 to 4.9;
computer output for separate business types held by the author.

TABLE 4.2

RANK ORDER OF THE MEAN VALUES OF SCALE VARIATES FOR THE OUTLETS OF EACH CLASS OF BUSINESS AREA AND REGIONAL MARKET
(HIGHEST VALUE = 1)

SCALE VARIATE	RANK OF MEAN VALUES FOR OUTLETS IN Business Area Class								RANK OF MEAN VALUES FOR OUTLETS IN Regional Market					
	N1	N2	N3	N4	J1	J2	J3	J4	CC	NH	M	G	SB	B
OUTPUT														
1. Mean weekly takings ($A)	2	4	5	7	3	1	6	8	5	6	4	2	1	3
2. Projected annual takings ($A)	2	4	5	7	3	1	6	8	5	6	4	2	1	3
*3. Average total mnhrs.	2	4	5	7	3	1	8	6	3	5	6	4	1	2
4. Total number of workers	3	4	6	7	2	1	5	8	3	6	5	4	1	2
5. Number of part-time workers	2	5	4	7	6	1	3	8	4	6	3	5	1	2
6. Number of full-time workers	3	4	6	8	2	1	5	7	3	6	5	4	1	2
SPACE OCCUPIED														
7. Total ground floor area--sq.ft	2	4	7	6	5	1	3	8	5	6	3	4	1	2
*8. Floor area of selling space "	2	4	7	6	5	1	3	8	6	5	2	3	1	4
9. Frontage - ft.	4	6	5	7	8	2	1	3	6	2	3	4	1	5

* Variate having no overall relation with groceries outlet location significant at 5% level

Sources: Statistical Appendix 4 - Tables 4.1 to 4.9.

TABLE 4.3

RANK ORDER OF THE MEAN VALUES OF SCALE VARIATES FOR THE OUTLETS OF EACH BUSINESS TYPE (HIGHEST VALUE=1)

SCALE VARIATE	SUPER-MARKETS	GROC-ERIES	GENERAL STORES
OUTPUT			
1. Mn. wkly takings ($A)	1	2	3
2. Projected annual takings ($A)	1	2	3
3. Average total manhrs/week	1	2	3
4. Total no. workers	1	2	3
5. No. part-time workers	1	2	3
6. No. full-time workers	1	2	3
SPACE OCCUPIED			
7. Total ground floor area (sq.ft)	1	2	3
8. Floor area of selling space"	1	2	3
9. Frontage (ft.)	1	2	3

Sources: Statistical Appendix 4 - Tables 4.1 to 4.9.

The second kind of deficiency was that each measure itself could only be approximated by the data and methods of calculation used to obtain it. For example, the figures used for 'average weekly takings for the last three months' for an individual outlet were derived from the recollections of the entrepreneur of the total amount of cash in his till over each of the preceding twelve weeks and from his estimation of some weekly norm using an undefined mental process. Again, the 'average total number of manhours worked per week for the last three months' was approximated by multiplying the entrepreneur's guess of the average number of workers employed per week by his guess concerning his total hours of opening per week, and arbitrarily attributing a regular part-time worker with half the hours of a full-time worker.

However, despite these deficiencies in the measures of scale, tests could still be made of the hypothesized relations between outlet location and outlet scale, using data for Hobart's groceries outlets to estimate each measure of size. But the two types of deficiency of the measures limit the validity of the conclusions drawn.

Description of the Gross Relations of Scale and Location

The measures of scale constituted a set of eight variates whose gross or overall relations with location were first investigated. The detailed results of the statistical analysis of the data for these variates for Hobart's groceries outlets are set out in Statistical Appendix 4, Tables 4.1. to 4.9; The results are summarized in Tables 4.1 and 4.2. Six of the eight variates showed strong, predictable associations with the locations of outlets classified by business area class or type, or with the locations of outlets classified by regional market. (Table 4.1). Only two - ground floor area of selling space and average total number of manhours worked per week - showed little or no overall association with location (Table 4.1). Now ground floor area of selling space is the poorest measure of the space occupied by a retail outlet; it does not reflect either the total quantity of space used for retailing purposes as accurately as does total gross floor area, nor the total quantity of street access and display space occupied as accurately as does frontage. Similarly average total number of manhours worked per week is a poor measure of the outputs of different retail outlets, for the outputs will be a product of both differing total hours worked and differing labour efficiencies. The lack of strong, predictable overall relations between outlet location, floor area of selling space and total manhours worked may therefore be discounted. The conclusion may be drawn that the evidence for Hobart's groceries outlets gives some support to the hypothesized relations between outlet location and outlet scale.[5]

The Gross Relations of Location and Output

The measures of output which exhibited strong predictable overall relations with location were average weekly takings, annual takings, total number of workers, number of full-time workers, and number of regular part-time workers. These variates all showed a similar type of strong, predictable relation with groceries outlet location classified by class of business area; the mean value for each in general increased with the status of the N or J business area class in which outlets were located (Table 4.2). It is true that there was a high degree of variability within each business area class of the individual store values about the mean for each variate. This is indicated by the high coefficients of variation obtained for the outlets for each business area

class (Statistical Appendix 4, Tables 4.1 to 4.6). But there is considerable evidence from the trends in the mean values of an increase in outlet output with a change in outlet location from lower order (N2 to N4; J3, J4) to higher order (N1, J1, J2) business areas. Nevertheless, the very high coefficients of variation for the highest order business areas are a reflection of the fact that in no order of business area are the smaller scale operations entirely displaced by large-scale ones.

While there are strong, predictable relations between outlet output and location in each class of business area, there is little evidence of this sort of relation between output and location in each type of business area (Table 4.1). The explanation for this lack of relation does not pose a great problem. It has been noted that the levels of, and trends in each variate are similar for outlets in the N1 to N4 and J1 to J4 classes within each business area type. The groceries outlets of the cores of nucleated functions in joint (nucleated plus arterial function) business areas seem to have counterparts of the same size in some class of nucleated shopping centre. This will produce similar mean values for each output measure for all the outlets of each type of business area. The similar mean values for each output variate for the two types of business area cannot be taken as evidence against the hypothesized relation of scale and location. For the similar mean values are themselves the product of strong, predictable relations of outlet scale and location.

However, the relations of outlet scale and outlet location by class of business area are not so strong as to appear in the case of the outlets of each business type separately (supermarkets, groceries and general stores) (Table 4.1). On the other hand, as Tables 4.1 and 4.3 show, there is a very strong, predictable relation between the output of groceries outlets and their business type. Supermarkets, groceries and general stores rank very clearly first, second and third respectively by output, even though there is considerable variability in the outputs of individual supermarkets, groceries, and general stores (V values, Statistical Appendix 4 - Tables 4.1 to 4.6). Taken with the overall association of output and location by business area class for all outlets, this suggests that distinctive ranges of outlet scale evolve with the systematic adjustment of groceries outlet outputs with change in location. The distinctive ranges of scales of outlet are identified easily in the field as the three business types, supermarkets, groceries and general stores.

The mean values for each variable also furnish evidence of a strong, predictable relation between groceries outlet output and groceries outlet location classified by regional market (Tables 4.1, 4.2). Table 4.2 shows the rank order of the mean values for each variate for all the groceries outlets in each regional market. Whilst the rank of the mean for every variate is not the same for each market, it is clear that the rank correlation is strong. Sandy Bay market has the highest level of output per establishment by every measure; Bellerive, Glenorchy, Moonah, Central City and North Hobart markets follow Sandy Bay in decreasing order of output per outlet. The same trend in the mean values of at least some variate measuring output also appears for the general stores in each market alone (Table 4.1). Despite the fact that high coefficients of variation reveal a high degree of variability of the measures of output for individual outlets about their market means (Statistical Appendix 4 - Tables 4.1 to 4.6), there seems sufficient evidence to conclude that outlet output increases with change in outlet location from inner suburban (Central City, North Hobart) to outer suburban (Moonah, Glenorchy, Bellerive, Sandy Bay) markets.[6]

The high coefficients of variation seem to show that the association of output and regional market location is produced by the variations between markets in the proportions of outlets along the scale from the very large to the very small, rather than by a tendency of all the outlets of the three business types within each market to be at or near their market mean output value. Given the distinctive mean outputs but high output variability of the supermarkets, groceries and general stores, this seems to provide a second piece of evidence that the evolution of the three business types is consequent upon the systematic adjustment of groceries outlet scales with change in groceries outlet location.[7]

The Gross Relations of Location and Space Occupied

The two reliable measures of space occupied - store frontage and total ground floor area - possess relations with location which are in some respects similar to, and some respects different from, those shown by the output measures (Table 4.2; Statistical Appendix 4 - Tables 4.1 to 4.9). Changes in total ground floor area in general seem to follow changes in output, and to increase with change in outlet location from lower order to higher order business areas. However, there are some anomalously small outlets in the C.R.A., (class J1), and some anomalously large ones in business area classes N4 (isolated small stores) and J2 (the Sandy Bay shopping centre).[8] On the other hand, frontage, which shows the strongest association with location by class of business area of any variate (Table 4.1), shows a form of relation which differs markedly from any other (Table 4.2). The classes of business area ranked in ascending order by their mean frontage per outlet values are J3, J2, J4, N1, N3, N2, J1 and N4, rather than the normal J2, N1, J1, N2, N3, J3, N4, J4 sequence for the other measures of outlet scale. This shows that although distinctive street frontages (display and access space) may be obtainable by outlets in each class of business area, street frontage does not increase directly with store output or even with the total ground floor space occupied. The reason for this discrepancy might lie in the differential costs of obtaining a portion of land giving direct access to customers in different classes of business area and in the differential efficiency of entrepreneurs in using it.[9, 10]

Whereas both total ground floor area and frontage furnished evidence of a strong, predictable relation with outlet location classified by business area class, only frontage showed a similarly strong, predictable relation with outlet location classified by business area type (Table 4.1). Neither the lack of relation shown by total ground floor area nor the strong relation shown by frontage without the location classified by business area type was surprising, given the types of association of each of these variates with outlet location classified by class of business area.

While total ground floor space and frontage are not both related to outlet location classified by business area type, both measures do show strong, predictable relations with outlet location classified by regional market (Table 4.1). But whereas the form of the relation for total ground floor space is again similar to that of the output measures, that for frontage is again somewhat different (Table 4.2). Total ground floor space per outlet increases with change in outlet location from inner to outer suburban markets.[11] On the other hand, the frontage per outlet tends to be small in at least one outer suburban market (Bellerive), and large in at least one inner city market (North Hobart). The reason for this discrepancy between floor space and frontage might lie in the differential costs of obtaining access and display space in the different

markets, or in the differential ability of entrepreneurs to make use of such space.

Finally, the measures of space occupied show a very strong association with the type of business of the groceries outlet (Tables 4.1, 4.2). Supermarkets had a mean frontage of 46.67 feet, and a mean gross floor area of 5398.44 sq. ft., groceries a mean frontage of 36.52 ft. and a mean gross floor area of 1690.43 sq. ft., and general stores a mean frontage of 26.93 ft. and a mean gross floor area of 659.41 sq. ft. But despite the marked differences between the outlets of the different business types in total floor space and frontage, the outlets within each type of business were not homogeneous in these respects; moderate to high coefficients of variation were recorded for both the total floor space and frontage of supermarkets, groceries and general stores (Statistical Appendix 4 - Tables 4.7, 4.9). Taken with the overall association of space occupied and location, this seems to reveal again that distinctive ranges of outlet scale arise following the systematic adjustment of groceries outlet output and space occupied with changes in location. The emergence of the distinctive scales of outlet permits the easy identification in the field of three business types, supermarkets, groceries and general stores.[12]

Interpretation of the Gross Relations of Scale and Location

Many theoretical and empirical studies suggest that the observed associations of groceries outlet location and scale may be interpreted as close, two-way, spatial-temporal relations.[13] For example, Chamberlin has theorized concerning possible interactions over space and time between retail outlet location, outlet scale and the entrepreneur's perception of the optimum scale for his outlet.[14, 15] In addition, Applebaum's market research reports display an appreciation of the fact that an alteration in location will cause an alteration in scale, and that a major change in planned optimum scale will lead to a revised location decision.[16] Accordingly, the gross relations which have been discovered for Hobart's groceries outlets may be interpreted as follows. The interpretation provides additional evidence of the support given by the data to one of the propositions of the first hypothesis: that strong, close, predictable, two-way relations exist between outlet location and outlet scale, which help account for the locational structure of a retail trade.

Gross Relations: Location Classified by Class of Business Area and Outlet Scale

General interpretation. The observed relations of outlet location classified by class of business area with outlet scale may be interpreted as a reflection of two cause-and-effect-situations. Firstly, in Hobart, a change over space or time[17] in outlet location from lower order business area classes (N2 to N4; J3, J4) to higher order business area classes (N1, J1, J2) in general will be the cause of an increase in outlet scale (output and gross floor area). Secondly in Hobart, an increase over space or time in the perceived optimum scale for groceries outlets will be the cause of a change in groceries outlet location from lower order to higher order business areas. This change in location will occur because the new optimum scale will only be able to be attained in upper order business areas. Consequently, new entrants will find upper order business areas more attractive than lower order ones; some new entrant and existing outlets in upper order business areas will be able to increase their scale; while at least some of the marginal small outlets in lower

order business areas may disappear as the upper order business areas outlets increase in size.

The two cause-and-effect situations may become linked, because the effect of the first, namely, an increase in outlet scale which is perceptible to groceries outlet entrepreneurs, may become the cause of the second, and vice versa. The suggested overall interrelation of scale of output and location by class of business area is summarized diagramatically in Fig. IV.1. This particular interpretation of the relations of outlet scale and outlet location is supported by the work of Berry and Simmons in Chicago. Berry and Simmons show how changes in the locations of retail outlets from lower to higher order business areas are both a cause and a result of increases in outlet scale in many trades.[18]

In the case of Hobart's groceries outlets, the initial change in either location or scale may itself be effected in turn by changes in other endogenous variables, for example, by changes in the competitive characteristics of the outlets. On the other hand, the whole pattern of interaction between outlet location by class of business area and outlet scale may be dependent upon the current condition of certain very slowly changing exogenous variables, such as the current state of the technologies of private transportation and of groceries retailing, and the availability of capital to existing and prospective groceries entrepreneurs for investment in a large-scale retail enterprise. The manner in which both endogenous and exogenous variables may effect the interrelation of outlet location and scale is more properly discussed later when the primary and secondary linkages of location and scale are examined.[19]

The interrelationship which is summarized in Fig. IV.1 implies that the mutual relations of groceries outlet scale and location operate in a very similar way within the heirarchy of upper and lower order N centres and within the heirarchy of upper and lower order J centres. This in turn implies that a spatial or temporal change from a site in an N business area to a site in a J business area of equivalent order in general in Hobart will represent no significant change in groceries outlet location. No interaction will therefore be set up between changes in sites between equivalent order N and J centres and changes in scale.[20] This is consistent with the earlier finding that no statistically significant association existed in 1964 of groceries outlet location by type of business area with groceries outlet output and total floor space.[21]

Explanation of the locational structure of groceries retailing in Hobart in 1964. The mutual relations of outlet scale and location classified by class of business area help account for many of the outstanding features of the locational structure of the Hobart groceries trade as it appeared in 1964.[22] Firstly, it seems reasonable to assume on the basis of these relations that total net profits in general are highest in the highest order N and J business areas, and that these areas appear very attractive to entrepreneurs.[23] For it is here that very large scales of output may be obtained, by at least a few lucky entrepreneurs in the market. Secondly, profits may be assumed in general to decline for stores in the lowest order N and J business areas, for it is here that only medium to low scales of output are attainable. Bearing these considerations in mind, the reasons for the following features of the locational structure of groceries retailing in Hobart in 1964 are readily explicable:

(i) that upper order N and J centres were most important in terms of the numbers of groceries outlet per centre, and

FIGS. IV.1 - IV.2

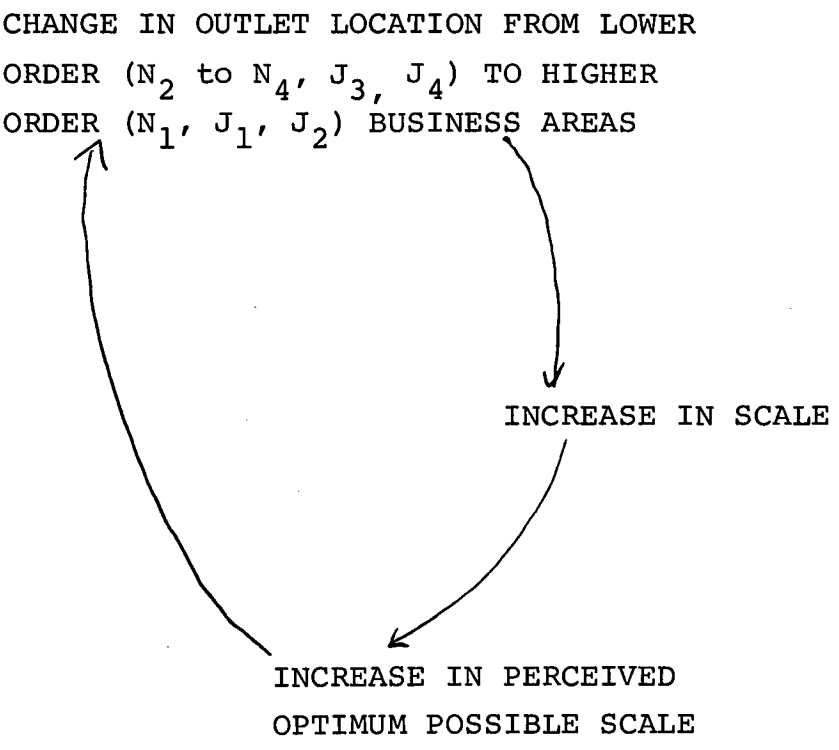


FIG. IV.1 INTERDEPENDENCE OF OUTLET SCALE AND OUTLET LOCATION BY CLASS OF BUSINESS AREA, GROCERIES OUTLETS, HOBART

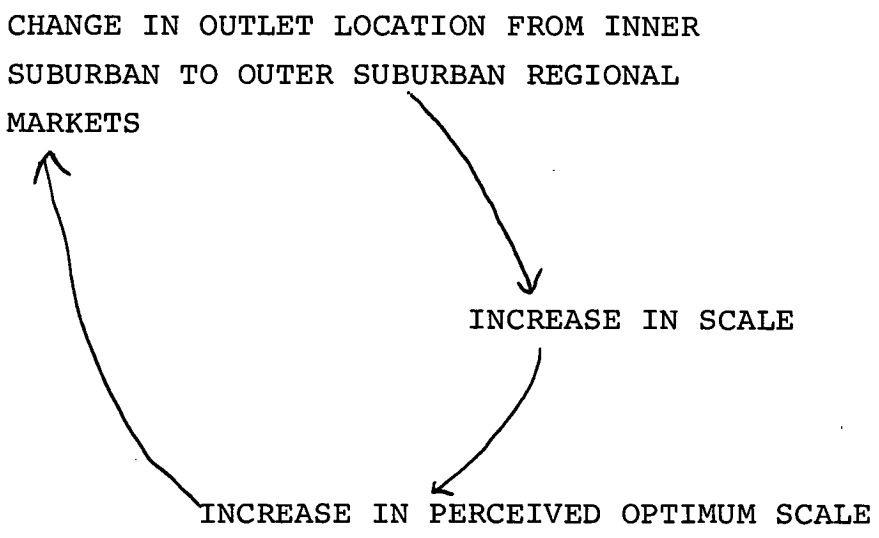


FIG. IV.2 INTERDEPENDENCE OF OUTLET SCALE AND OUTLET LOCATION BY REGIONAL MARKET, GROCERIES OUTLETS, HOBART

in the proportions of business areas possessing groceries outlets;

(ii) that there were only nine very large-scale outlets (supermarkets) and that these were exclusively located in the highest order business areas;

(iii) that there were a larger number of middle-size outlets (groceries), which were distributed between all classes of business area, though they were predominant in the middle order business area classes;

(iv) that there were numerous small-scale outlets (general stores), which were concentrated in the lowest order business areas, though represented elsewhere;

(v) the groceries outlets of the highest order business area classes were composed predominantly of supermarkets and general stores, the largest and smallest outlets;

(vi) that medium- and small-scale outlets (groceries and general stores) were typical of middle to low order business areas;

(vii) that the smallest scale outlets (general stores) were dominant in the very lowest order business areas.

Gross Relations : Location Classified by Regional Market and Outlet Scale

General interpretation. Like the relations between scale and location classified by class of business area, the relations between scale and location classified by regional market may be interpreted as a reflection of two cause-and-effect situations. Firstly, in Hobart, a change in groceries outlet location over space or time[24] from inner suburban (Central City, North Hobart) to outer suburban (Moonah, Glenorchy, Sandy Bay, Bellerive) markets will be the cause of an increase in outlet scale (output, space occupied). Secondly, an increase over space or time in the perceived optimum scale for groceries outlets will be the cause of a change in outlet location from inner-suburban to outer-suburban markets. This change in location will occur because the new optimum scale will be more readily attainable in outer suburban locations. Consequently, new entrants will find these locations more attractive than inner suburban ones; some new entrants and possibly some existing outlets will be able to increase their scales in outer suburban markets; and some of the smallest marginal operations in inner city markets will disappear.

The two cause-and-effect situations may become linked, for the effect of the first (an increase in scale perceptable to entrepreneurs) may become the cause of the second, and vice versa. The overall mutual relation of scale of output and regional market location is summarised diagrammatically in Fig. IV.2. This particular interpretation is supported by the work of Berry, Zimmer and Schell, in Chicago, Philadelphia and Boston respectively.[25] They have discussed the interactions between changes in retail location from inner to outer suburban areas and increases in outlet scale in many trades.

In the case of Hobart's groceries outlets, the initial change in either location or scale may itself be effected by other endogenous variables: for example by changes in the competitive characteristics

of outlets such that there is less aggressive competition by entrepreneurs in outer as compared with inner suburban markets. On the other hand, the whole pattern of interaction between location by regional market and outlet scale may be dependent upon the current condition of relatively slowly changing exogenous variables, such as the current state of the technologies of private transportation and groceries retailing, the current location and rates of development of new growth areas of the metropolis, and the current availability of capital for investment in large-scale enterprise. The manner in which both endogenous and exogenous variables may impinge upon the mutual relations of outlet location and outlet scale are more properly discussed later when the primary and secondary linkages of location and scale are examined.

Explanation of the locational structure in groceries retailing in Hobart in 1964. The mutual relations of outlet scale and location classified by regional market, help account for some of the outstanding features of the locational structure of groceries retailing in Hobart in 1964.[26] Firstly, it seems reasonable to assume that profits are highest in the peripheral markets of the city, that is, in the Glenorchy, Bellerive, and Sandy Bay markets,[27] for it is here that the largest scale outlets in Hobart may be developed by at least some entrepreneurs. However, within these regional markets, attempts to take advantage of increased scale will restrict the number of stores able to serve the market's population. Secondly, it seems reasonable to assume that profits decline for stores in the inner suburban markets, for it is here that medium to low scales of output only may be attained. But with lower outputs and profits, more stores may be able to survive to serve the population of these markets. Bearing these considerations in mind, the following features of the locational structure of groceries retailing in Hobart in 1964 are readily explicable :

(i) that there was a relatively larger number of outlets in inner city markets, and that these were characteristically smaller-scale general stores and groceries;

(ii) that there were relatively fewer outlets in the outer city markets, and that, especially for the peripheral Sandy Bay and Glenorchy markets, these outlets were composed of higher proportions of larger-scale supermarkets and groceries.

TABLES 4.4 - 4.5

TABLE 4.4

SUMMARY OF THE RESULTS OF χ^2 TESTS OF THE ASSOCIATION OF OUTLET COMPETITIVE CHARACTERISTICS WITH (1) OUTLET LOCATION AND (2) TYPE OF OUTLET AND OUTLET LOCATION

COMPETITIVE CHARACTERISTIC	ALL GROCERIES OUTLETS CLASSIFIED BY LOCATION IN			GENERAL STORES CLASSIFIED BY LOCATION IN		
	BUS. TYPE (SM, Gro, Gen)	BUSINESS AREA TYPE (N,J)	B.A. CLASS (N1-N4, J1-J4)	REGIONAL MARKET	BUSINESS AREA TYPE (N,J)	B.A. CLASS (N1-N4 J1-J4)	REGIONAL MARKET
1. Pricing methods for goods sold	No	χ^2 analysis overall			No	χ^2 analysis overall	
1a Whether Retail Traders Assoc. prices used or not	/	-	o	-	Fail	Fail	Fail
1b Whether or not goods are priced to match comp. prices	/	-	ô	ô	o	Fail	Fail
2. Whether entrepreneur fears competitors' retaliation	(x)	x	(/)	x	Fail	Fail	Fail
3. Degree to which entrepreneur is responsive to competitors' actions	(x)	o	-	/	-	-	/
4. Perceived number of competitors	(x)	x	(/)	(/)	x	Fail	Fail
5. Entrepreneurs attitude to r.p.m.	Fail	-	Fail	Fail	Fail	Fail	Fail
6. Entrepreneurs profit motive (fair living or profit max.)	/	-	-	-	x	/	/
7. Entrepreneurs preferred trading hours for the trade	Fail	x	(/)	/	o	/	/
8. Whether or not entrepreneur wants preferential treatment for small stores	x	-	(/)	/	o	/	/
9. Location of competitors	No	χ^2 analysis overall			No	χ^2 analysis overall	
9a Whether or not in major shopping centres	-	/	(/)	(/)	/	/	/
9b Whether or not isolated stores	-	-	/	x	-	/	x

/ χ^2 significant at 1% level) Strong
x χ^2 significant at 5% level) relation
o χ^2 significant at 10% level
\- χ^2 not significant at 10% level

(x) Proportion of contingency table cells with expected frequencies <5 exceeded 0.20 but no cells had EF's=0

No χ^2 analysis, or Fail: Sample too small in relation to number of cells of contingency table either to attempt χ^2, OR to provide satisfactory results where χ^2 attempted. Whether or not a significant association of the attribute and location or type of business existed had to be determined analytically by inspection of the data.

Sources: Statistical Appendix 5 - Tables 5.1 to 5.8; computer output for separate business types held by author.

TABLE 4.5.(i)

THE COMPETITIVE CHARACTERISTICS OF GROCERIES OUTLETS IN DIFFERENT BUSINESS AREA CLASSES

OUTLETS IN B.A. CLASS	Pn Entrepreneurs using trade margin	* Pn Entrepreneurs using R.T.A. prices[a]	* Pn Entrepreneurs pricing to meet comps.	Pn Entrepreneurs fearing comp. retln	* Pn Entrepreneurs taking a/c of comps. plans	Pn Entrepreneurs with ≤5 comps.	Pn Entrepreneurs with comps. in J1(CRA)	Pn Entrepreneurs with comps. in N1,J2	Pn Entrepreneurs with comps. in N2,N3,J2	* Pn Entrepreneurs with comps. in N4,J4	Pn Entrepreneurs desiring rpm	Pn Entrepreneurs maximising profits	Pn Entrepreneurs wanting different hrs. for lg, sm. stores
N1	.37	.21	.47	.11	.07	.07	.47	.08	.00	.00	.06	.47	.05
N2	.61	.35	.39	.09	.30	.48	.52	.61	.43	.09	.52	.35	.35
N3	.42	.24	.37	.03	.47	.65	.53	.68	.21	.18	.68	.47	.65
N4	.41	.53	.26	.04	.56	.60	.50	.73	.33	.28	.68	.40	.40
J1	.55	.33	.27	.22	.72	.22	.94	.06	.00	.00	.38	.33	.11
J2	.00[b]	.00	1.00	1.00	1.00	.50	1.00	.50	.50[b]	.50[b]	.00	1.00	.00
J3	.38	.38	.13.	.00	.25	1.00	.13	.63	.38	.13	.71	.13	.50
J4	.69	.75	.13	.00	.25	.25	.63	.50	.19	.69	.88	.50	.63

* The relation of this competitive characteristic with outlet location was not statistically significant at the 5% level

a Prices recommended by the Retail Traders Association of Tasmania.

b There were only two outlets in this business area class. Their entrepreneurs used customary trade margins for a restricted range of goods only. One of the entrepreneurs regarded as his competitors, all entrepreneurs in all the shopping centres near him.

Sources: Statistical Appendix 5 - Tables 5.1 to 5.8.

TABLE 4.5.(ii)

THE COMPETITIVE CHARACTERISTICS OF GROCERIES OUTLETS IN DIFFERENT REGIONAL MARKETS

OUTLETS IN REGNL. MKT.	Pn Entrepreneurs using trade margin	* Pn Entrepreneurs using R.T.A. prices[a]	* Pn Entrepreneurs taking a/c of comps. plans	Pn Entrepreneurs with <5 comps.	Pn Entrepreneurs with comps. in J1(CRA)	Pn Entrepreneurs with comps in N1,J2	Pn Entrepreneurs with comps. in N2N3J3	Pn Entrepreneurs with comps. in N4J4	Pn Entrepreneurs desiring r.p.m.	* Pn Entrepreneurs maximising profits	Pn Entrepreneurs wanting diff.hrs for lg/ sm stores	Pn Entrepreneurs pricing to meet comps.	Pn Entrepreneurs fearing comp. retln.
C.CITY	.56	.54	.49	.40	.78	.16	.22	.22	.68	.39	.36	.18	.06
N.HOBT	.53	.42	.72	.32	.68	.72	.30	.19	.77	.32	.62	.38	.00
MNAH	.23	.26	.71	.68	.13	.90	.29	.42	.52	.52	.45	.29	.24
G'ORCHY	.38	.28	.47	.88	.22	.91	.31	.25	.50	.59	.44	.34	.06
S.BAY	.44	.44	.88	.94	.13	.83	.13	.96	.63	.56	.44	.56	.19
B'RIVE	.13	.38	.25	.94	.94	.63	.25	.00	.56	.44	.13	.50	.00

* The relation of this competitive characteristic with outlet location was not statistically significant at the 5% level

a Prices recommended by the Retail Traders Association of Tasmania.

Sources: Statistical Appendix 5 - Tables 5.1 to 5.8.

OUTLET LOCATION AND COMPETITION FOR REVENUE

A more detailed analysis of the influence of outlet scale on outlet location first requires the consideration of the competitive characteristics of Hobart's groceries outlets, and thus of the market structure of groceries retailing in Hobart. For many theoretical and empirical studies suggest that there will be a very close relation between the scale of retail outlets and the nature of competition between their entrepreneurs for revenue.[28] Because outlet scale is so strongly related to outlet location, the interaction of outlet scale and the nature of competition can be expected to have an important bearing on the locations of Hobart's groceries outlets.

Statistical Appendix 5 - Tables 5.1 to 5.8 contains information concerning eight attributes describing the competitive characteristics of Hobart's groceries outlets. This information is summarised in Tables 4.4 and 4.5. In addition to providing a basis for the later clarification of scale-location relations, the information permits the testing of the second hypothesis of this work; "that the locations of the outlets of a retail trade become significantly interrelated in predictable ways with each others' locations and other characteristics through the process for competition for revenue."[29, 30]

Definitions and Measures of the Competitive Characteristics of Retail Outlets

The competitive characteristics of Hobart's groceries outlets were defined as attributes resulting from the entrepreneur's typical attitudes, expectations and behaviour in the process of competition for revenue. The definition assumed that the normal behaviour of a retail competitor would fall into one of the many forms categorised in economic theory, and would be classifiable as competitive, monopolistically competitive, imperfectly competitive, oligopolistically competitive, or some variant of these.[31] In theory, the different types of retail competitor can be distinguished by their pricing, product differentiation, and advertising and sales promotion methods; by the number of other entrepreneurs whom they regard as their competitors; by the degree of their fear of and their responsiveness to their competitors' moves; and finally, by their degree of concern with maximising profits as opposed to obtaining some satisfactory or fair profits level.

Consequently, the following eight measures of the competitive characteristics of Hobart's groceries outlets were employed :

(i) pricing methods for goods sold;

(ii) whether the entrepreneur took competitors' retaliations into account when making selling plans;

(iii) the degree to which the entrepreneur was responsive to competitors' policies;

(iv) the number of outlets which the entrepreneur believed to be in close competition with his;

(v) the entrepreneur's attitude to retail price maintenance;

(vi) the entrepreneur's profit motive;

(vii) the entrepreneur's attitude to control of trading hours, including whether or not he believed in preferential treatment of small as against large stores by the government.

Finally, because the nature of spatial competition was particularly in question here, an additional measure of the competitive characteristics of Hobart's groceries outlets was included:

(viii) the locations of the outlets the entrepreneur believed to be his close competitors.

The questions used to gain data for the measures and comments on the ways they had to be phrased to be understood by the entrepreneurs in Hobart, are noted in Appendix 4, which contains a copy of the Bueinessman's Questionnaire. The questions provided data only on what Hobart's groceries outlet entrepreneurs believed to be their attitudes, expectations and behaviour, not on what may have been a more objective analyst's view of them. This limits the degree of validity of the following conclusions concerning the competitive characteristics of Hobart's groceries outlets, the structure of the Hobart groceries market, and the relations between the locations and competitive characteristics of Hobart's groceries establishments.

The General Characteristics of the Hobart Metropolitan Groceries Market

The competitive characteristics formed a set of eight attributes, which described the linkages of a groceries outlet with the locations and other characteristics of other outlets in the Hobart market. Six of these attributes showed strong, predictable overall relations with outlet location classified by class of business area and regional market. Only certain types of pricing method (for example, whether or not goods were priced using Retail Traders' Association prices) and the entrepreneurs profit motive showed no strong overall relation with location. (Tables 4.4 and 4.5; Statistical Appendix 5 - Tables 5.1 to 5.8). These results give some support to the second hypothesis: "that the locations of the outlet of a given trade become significantly interrelated in predictable ways with each others' locations and other characteristics, through the process of competition for revenue."

The Hobart groceries market in general bears the hallmarks of an imperfectly competitive one though there is moderate oligopolistic competition within it.[32] For example, the highest proportion of entrepreneurs (95/215) used full-cost pricing techniques and local trade margins, and the second highest proportion (86/215) used the prices recommended for the successful operation of an average store by their own State Trade Association. One hundred and twenty five/two hundred and fifteen of the entrepreneurs were in business not to maximise their income but to make sufficient profits for a reasonable, comfortable, or fair living. But many entrepreneurs combined other pricing techniques with pricing to meet competitors' prices and varying prices or mark-up on some individual goods for highest returns. In addition 117/215 entrepreneurs normally took into account competitors' price, service, product range and advertising policies when making their selling plans, although only 16/215 took competitors' retaliation into account when

devising their selling policies.

The more active competitors in the market appeared to be very aggressive. This was evident from the resentful, disgusted or fearful attitudes of remaining entrepreneurs. For example, 136/215 felt that the re-introduction of retail price maintenance by the Government or by manufacturers or by the retailers themselves would be a marked advantage to the trade, and 92/215 wanted the trading hours for different sizes of store to be manipulated in order to give each type of store its fair share of the market.

The Hobart groceries market also appears to possess the small group oligopolistic structure which, in theory at least, has been considered typical of retail markets.[33] Besides the fact that a majority of entrepreneurs took their competitors' pricing and other selling activities into account, 123/215 entrepreneurs felt they had less than five competitors, and a further 73 felt they had only six to ten competitors. The type of oligopolistic structure of the Hobart groceries market seems to be both interesting and unusual however; the metropolitan market seems to be composed of a set of very small, overlapping, local markets which are focussed on the C.R.A. and/or the nearest major regional shopping centre. Statistical Appendix 5 - Table 5.5. (i) reveals that the great majority of entrepreneurs had few (less than five) competitors and 119/215 and 129/215 entrepreneurs believed they had competitors in the C.R.A. and/or a major centre; but only 59, 55, and 47 considered outlets in their own business area, in neighbouring local shopping centres, or neighbouring corner stores, respectively, as their competitors.[34]

The fact that strong, predictable relations appear between the competitive characteristics of groceries outlets and their location also suggests that there will exist a number of smaller-scale markets in different parts of the general Hobart metropolitan area market. It suggests too that there may be a spatial ordering of these sub-markets within the larger metropolitan market which is generally ignored by economists in their concern for aggregate behaviour,[35] and which might be of some importance to those concerned with planning retailing within the city.

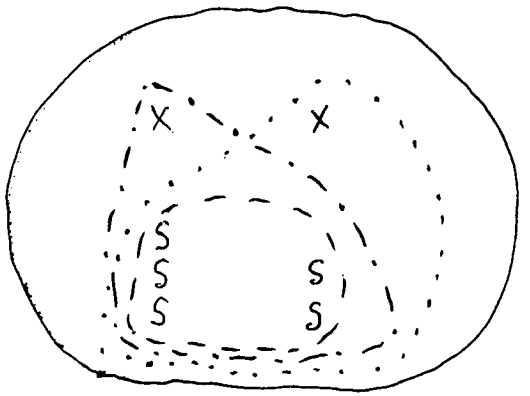
Description of the Gross Relations of Outlet Location by Class of Business Area and Outlet Competitive Characteristics

Table 4.5. (i) shows that, in general, the higher the class of business area in which a groceries outlet is located, - irrespective of the business area type - the smaller, the more highly competitive, and the more oligopolistic is the intra-metropolitan market in which it functions, and the more closely and directly are its location and other characteristics bound up with the locations and other characteristics of other groceries outlets.

Competition Among Outlets in Higher Order Business Areas (N1, J1, J2)

Locational classes N1, J1 and J2 were characterised by the highest proportions of entrepreneurs pricing to meet competitors' prices and/or varying the price or mark-up on the same goods for highest returns, and by the highest proportion of entrepreneurs taking competitors' retaliation into account when making selling plans.

FIG. IV.3



LOCN. OF OUTLET	J_1	(J_2 or	(J_3 or	(J_4 or	N_4
B.A. CLASS	CRA	(N_1	(N_2	(N_3	

——— Chained market of all groceries outlets in highest order shopping centres

– – – Perceived group of competitors by a supermarket entrepreneur (including himself)

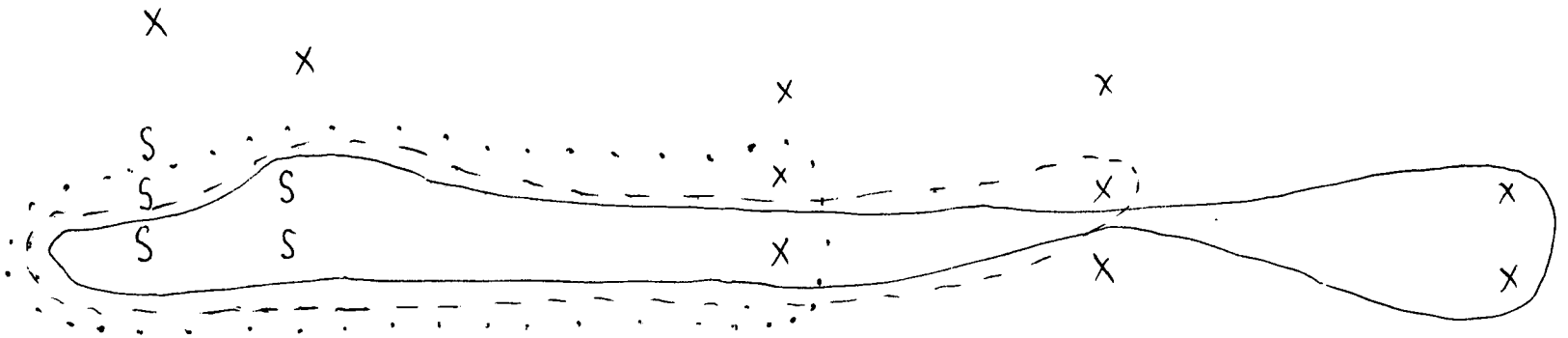
–.–. Perceived group of competitors by a grocery or general store entrepreneur in the CRA (including himself)

. . . . Perceived group of competitors by grocery or general store entrepreneur in business area class N_1 or J_2 (including himself)

S Supermarket

X Other groceries outlet

FIG. IV.3.(i) GENERALISED DIAGRAM OF THE CHAINED MARKET STRUCTURE OF GROCERIES OUTLETS IN HIGHER ORDER BUSINESS AREAS IN HOBART



—— Perceived group of competitors by a grocery or general store entrepreneur in business area class N_4 (including himself)

– – – Perceived group of competitors by a grocery or general store entrepreneur in business area class J_4 or N_3 (including himself)

. . . Perceived group of competitors by a grocery or general store entrepreneur in business area class J_3 or N_2

S Supermarket

X Other groceries outlet

FIG. IV.3.(ii) GENERALISED DIAGRAM OF THE SPATIAL STRUCTURE OF LOCAL MARKETS OF GROCERIES OUTLETS IN LOWER ORDER BUSINESS AREAS IN HOBART

Entrepreneurs here felt that fewer outlets were competitors; they had mostly less than 5, or 5 to 10 competing outlets. Competitors were confined largely to the same centre, and/or the nearest regional shopping centre, and/or the C.R.A. The outlets in the upper orders of business area thus seem to comprise a distinctive highly competitive chained market of their own (Fig. IV.3).[36]

The distinctive features of this chained market are very much affected by one sub-group of stores, the supermarkets, which are found only in upper order business areas.[37] The supermarket entrepreneurs indulged in a distinctive form of highly aggressive oligopolistic competition (Statistical Appendix 5 - Tables 5.1 to 5.8). Seven of the nine supermarket entrepreneurs believed they were in close competition with less than five other outlets, these being other supermarkets located in the same regional shopping centre, in any adjacent centres of class N1 and in the C.R.A. The two entrepreneurs who felt they had more than 10 competitors said they regarded everyone as a competitor though they paid most attention to the nearest supermarkets. All the entrepreneurs tried to price as many goods as possible in such a way as to maximise returns and to meet competitors' prices;[38] on the remainder where the effort involved was too great to use maximum profits pricing, they used local trade mark-ups, and 'modified' Retail Traders' Association prices. Five of the nine entrepreneurs were very much concerned with taking their competitors' expected retaliation into account when making selling plans. All were concerned that they should always be "generally competitive" in terms of service, product range, advertising and sales promotion, as well as in terms of price.[39] Supermarket entrepreneurs felt well able to cope with the aggressive competition which they faced. This is revealed in the fact that the majority felt that any form of retail price maintenance would be a disadvantage to the Hobart groceries trade, and that all stores should have equal competitive opportunity with identical work and after work trading hours for customers.[40]

The supermarkets in Hobart, then, comprise a distinctive, homogeneous, vigorously competitive, oligopolistic group. They act as 'competition leaders' in price and non-price offers within the chained market comprised of groceries buyers and sellers of all types in the upper order business areas.

Competition Among Outlets in Lower Order Shopping Centres (N2 to N4; J3, J4)

The spatial structure of the markets of outlets in lower order business areas. Supermarkets, together with other large self-service groceries in higher order centres, also act as 'competition leaders' in the overlapping less competitive local groceries markets of the outlets of the lower orders of shopping centres. The entrepreneurs of the outlets in lower order business areas showed particular concern over the supermarkets in the nearest large shopping centres; they regarded them as their major competitors even if the supermarket entrepreneurs acted as if they were unaware of the smaller outlets' existence. Fifty seven out of ninety one of the entrepreneurs of isolated corner groceries and general stores (business area class N4) felt that the large-scale outlets in neighbouring major shopping centres were their principal competitors; 45/91 felt that groceries outlets in the C.R.A. were major competitors. But outlets in lower as well as upper order business areas are also important as competitors. With variation in outlet location from business area class N2 to N4, and from business area class J2 to J4, there is

a rise in the probability of an outlet having a competitor in a neighbouring local shopping centre and in a neighbouring isolated single store, while there is a substantial drop in the probability of a store in the same centre being regarded as a major competitor. This reflects a situation where an entrepreneur in a given order of business area feels that some of his major competitors are distributed in a neighbouring shopping centre of equivalent order, and the remainder in business areas of each successively higher order than his own which are close enough to be counted as neighbouring.

There may be some selectivity with regard to the precise orders of business area which the entrepreneur feels hold his main competitors. For example, the entrepreneur of an isolated store (business area class N4) may not feel he has a competitor in a local shopping centre (N2, J3), because the nearest one is too far away; yet he may still feel that a neighbouring isolated store and a nearby neighbourhood centre and the closest regional shopping centre are near enough to be neighbouring and to hold his principal competitors. There may also be some selectivity as to which will be the entrepreneur's competitors of the several groceries outlets within a neighbouring centre of each order. There was certainly considerable evidence during interviews that the entrepreneurs of outlets outside N1, J1 and J2 classes considered only the large-scale and not the small-scale outlets within neighbouring centres as their competitors. The operation of these two forms of selectivity would explain why the total number of an outlet's competitors does not rise substantially as the business area status of an outlet's location decreases, and as the number of business area orders and centres in which competitors lie increases (Table 4.5. (i)). Outlets in the lower orders of business area appear to have less than ten competitors, and mostly less than five, just as outlets in higher order centres, though there is a small increase in the proportion of outlets with over 10 competitors in the lowest order business areas.

Thus with decrease in the status of its business area location, a groceries outlet in Hobart seems to operate in an increasing spatial scale of market, which extends to embrace the buyers and sellers in neighbouring centres of increasingly higher order. On the other hand, the size of the local market in which each entrepreneur sees himself functioning in terms of numbers of competing outlets does not seem to increase substantially. Overall, a spatial pattern appears of an over-lapping and linked hierarchy of local groceries markets, based on the hierarchical pattern of shopping centres. A simplified generalisation of the sort of spatial structure which is envisaged is shown in Fig. 4.3. (ii).

<u>The competitive characteristics of outlets in lower order business areas.</u> The competitive attitudes and behaviour of entrepreneurs seems to vary systematically with their location in each lower order of business area, and to contrast increasingly with the aggressive behaviour of the entrepreneurs in the upper order J1, J2 and N1 locations (Table 4.5.(i)). Outlet entrepreneurs pay less attention to and are less willing to indulge in active profit maximising competitive behaviour as the business area status of their location declines. For example, the proportion of entrepreneurs who use traditional trade margins or State Retail Traders' Association recommended prices increases; the proportion normally pricing at least some goods to meet competitors' prices or to maximise returns declines; and the proportion taking competitors' retaliation into account when making their selling plans also declines. On the other hand, the proportion of entrepreneurs who feel that maintained prices

would be a marked advantage to the Hobart groceries trade increases.[41] A prevalent attitude among the entrepreneurs in lower order business areas which restrained their competitive behaviour was that they did not have the means to compete effectively in any way with their main competitors, especially the supermarkets in regional shopping centres, even if they wished to do so.

The outlets in lower order business areas comprise both general stores and groceries.[42] The entrepreneurs of general stores seemed to be significantly less active in competition, though they felt part of larger competitive groups, than the entrepreneurs of groceries (Statistical Appendix 5 - Tables 5.1 to 5.8).[43] However, there is some evidence that the competitive behaviour of general store entrepreneurs and the size of their local market vary with the location of their outlets in middle or lower order business areas (Table 4.4).

Implications of the Competition among the Outlets of Higher and Lower Order Business Areas

There is one important implication of the changes in both the competitive characteristics of outlets and the spatial extent of their local market with changes in their location from lower order to higher order business areas. The range of behaviour of a groceries outlet's competitors increases with decrease in the business area status of the outlet's location. For the number of different business area orders in which an outlet's competitors are located increases the lower the status of the outlet's location, while the competitive characteristics of competing entrepreneurs vary quite considerably with the class of business area in which they are to be found. Only the groups of competitors in the higher orders of business area therefore display any behavioural homogeneity; the groups of competitors embracing outlets in successively lower orders of business area display increasing behavioral diversity.[44] (Figures IV.3. (i), (ii)).

Despite this diversity in behaviour, conversational evidence strongly pointed to adoptive ~~and adaptive~~ behaviour as generally accepted simple trading norms within the Hobart groceries market.[45] The "big stores", which were common to upper order business area and lower order business area markets, are the experimenters and innovators in competition for revenue. Each "big store" entrepreneur adapts to the outcome of his "big store" competitors' trial and error procedures, adopting those methods which appear successful and attempting to innovate successfully himself; his attention is principally focussed on each other "big store" entrepreneur. Other entrepreneurs of smaller outlets simply try if possible to adapt to the outcomes of the supermarket entrepreneurs' vigorously competitive behaviour, often misinterpreting the latters' motivation as a conscious and ruthless attempt to "drive them out of the market".

There is another implication of the variation of both the spatial structure of competitive groups and the competitive characteristics of outlets with outlet location classified by class of business area. The same sort of changes in market structure and outlet competitive characteristics occur as outlet location changes from the highest to lowest order N business areas (N1 to N4), and from the highest to lowest order J business areas (J1 to J4) (Fig. IV.3). This means that the outlets in business area types N and J tend to be similar with respect to their competitive characteristics and with respect to the markets in which they function. Accordingly, Table 4.4 reflects considerably weaker associations between outlet competitive characteristics and outlet location classified by type of business area.[46]

Description of the Gross Relations of Outlet Location by Regional Market and Outlet Competitive Characteristics

The Nature of Hobart's Six Regional Markets

There is another aspect of the spatially ordered structure of the Hobart metropolitan groceries market. The pattern of overlap and linkage between local groups of competitors, which is summarised in Figs. IV.3.(i) and IV.3. (ii), implies that a network of competing groups of outlets extends in the following orderly way to cover the whole metropolitan market.

First, Figs. IV.3.(i) and IV.3.(ii) reveal that the competition between the supermarkets in the regional shopping centres (of classes N1, J2 and J1) is of particular importance in defining the trading areas of those centres, and in dividing up the metropolitan area into trading regions. That is, intercentre supermarket competition is of particular importance in defining the regional markets of the Central City, Sandy Bay, Moonah and Glenorchy shopping centres in which the supermarkets are found. The regional trading areas of Bellerive and North Hobart, the two major centres without supermarkets but with large self-service groceries, lie in the interstices of the supermarket trading zones of other regional centres.

Next, Fig. IV.3.(ii) shows how groceries outlets are linked within each regional market. An outlet in a market will commonly be allied with more than one group of less than ten neighbouring competitors. The probability is high that each group will contain the same few large-scale stores in the neighbouring regional centre within the market, and/or one or more of the large scale stores outside the market in the C.R.A. The probability is also high that any other competitors in any group will come from a selection of neighbouring shopping centres of different orders within the regional market; only for groceries outlets near the boundary of two adjoining regional outlets will competitors in centres outside the market be close enough to be important.

Fig. IV.3.(ii) thus shows clearly how the outlets within each regional market function all together as a further type of intra-metropolitan groceries market. All the groceries outlets within each regional market comprise a regional groceries market, which is composed of a discreet set of linked small local competitive groups, which revolve around the supermarket in the regional centre. The outlets of the regional centres themselves function both in the regional market to which they belong, and in the highly competitive market comprised of the supermarkets and other groceries in the highest order centres (Figs. IV.3.(i) and (ii)). This latter market forms a superstructure to the regional groceries markets and in fact dominates and controls their operation.[47]

This analysis leads to the identification of a further set of strong, predictable relations between outlet location, now classified by regional market, and outlet competitive characteristics. An outlet located in any regional market can be associated with a unique regional grouping of competitors with distinctive locations and competitive behaviour (Table 4.4, 4.5.(ii)).

The Competitive Characteristics of the Outlets in each Regional Market (Table 4.5.(ii))

Central City Market.[48] The outlets of the Central City market are distinguished by a high proportion of their number having six to ten competitors and a smaller proportion of their number having nought to five competitors than the outlets of other markets. There is thus a higher probability of an entrepreneur feeling that he is in a slightly larger competitive group in this market than elsewhere. In this market too, there is a substantially higher probability that a competitor will be in the C.R.A., or in the same business area, rather than in a neighbouring major suburban shopping centre; neighbouring local shopping centres and neighbouring round the corner stores are also more important locations of competitors than the neighbouring major suburban centres.

Entrepreneurs of outlets in the Central City market appear in general unwilling, unable or unaware of the need to behave as active competitors.[49] A higher proportion of entrepreneurs than in other markets do not act to maximise profits but to make a fair living. In addition, a very high proportion in comparison with other markets use Retail Traders' Association prices for their goods. However, there must be considerable pressure to compete on most small groups of local competitors in this market especially by the atypical supermarkets in the C.R.A. This is reflected, for example, in the very marked preference by entrepreneurs here for the protection of their profits by retail price maintenance.

North Hobart market.[50] The North Hobart market is similar to the Central City market in many respects though it possesses some distinctive features. Again a higher proportion of entrepreneurs than in other markets feel that they are in competition with a large number of competitors (six to ten). But, unlike the Central City market, the probability that one of these competitors will be located in the nearest regional centre (North Hobart shopping centre) is higher than the probability that one will be located in the C.R.A. or in the same business area. The C.R.A. remains an important location of competitors, however. Neighbouring local shopping centres and one's own business area are less important but still significant locations of competitors, while neighbouring isolated stores are of less significance as competitors here than in the Central City market.

Entrepreneurs in this market prefer to abstain from active competition, or cannot indulge freely in it, though they feel sufficiently threatened by large-scale establishments to desire legislation to control prices and trading hours to protect their position. Compared with Central City entrepreneurs however the entrepreneurs of the North Hobart market are more willing to match competitors' prices, to modify Retail Traders' Association recommended prices to local trading conditions, and to take competitors' pricing and other policies into account when making selling plans.[51]

Moonah market.[52] The Moonah market provides a contrast to both the Central City and the North Hobart markets. A lower proportion of its entrepreneurs fear competition from a large number of competitors (six to ten). Moreover, it is in this market that the C.R.A. and one's own business area fade in importance as the location of major competitors; the major regional shopping centre become of overwhelming significance, while the neighbouring local shopping centre or an isolated round the corner store also increases in importance. The local competitive groups

within the Moonah market have marked oligopolistic tendencies, for a higher proportion of entrepreneurs than in any other market take competitors feared retaliation into account when making selling plans. In addition the entrepreneurs of the Moonah market tend to be more actively competitive than those elsewhere. They take much more account of competitors' policies in designing their own, and the highest proportion of entrepreneurs of any market are interested in pricing goods to maximise returns. Also, a lower proportion of entrepreneurs than in the Central City or North Hobart markets support retail price maintenance, and a lower proportion favour protection of their profits by manipulation of store trading hours. The over-riding factor causing the outlets of the Moonah market to be more competitive than those of the two inner City markets could be their proximity to two very aggressive supermarkets in the Moonah shopping centre and also to two equally aggressive supermarkets to the north in the Glenorchy shopping centre.[53]

Glenorchy market.[54] The outlets of the Glenorchy market differ from those of the inner city markets and from those of the Moonah market in terms of the numbers and locations of their competitors and in terms of their other competitive characteristics. There is a higher probability that a store will be in a group of nought to five competitors. While this group is virtually certain to include one of the large-scale outlets in the Glenorchy regional centre, there is an increased probability in comparison with the Moonah market that one of the competitors will be in the C.R.A.; however, the importance of the C.R.A. as a competitors' location is still much lower than in the Central City or the North Hobart markets. One's own business area is distinctively of minimal significance in the Glenorchy market as a location of competitors.

The outlets in the Glenorchy market do not appear quite so active or oligopolistic in competition as those in the Moonah market but they are more active in competition than those in the two inner city markets. For example, a slightly lower proportion of entrepreneurs than in the Moonah market price goods to match competitors' prices or vary the price or mark-up on the same goods to get highest returns; a very much lower proportion take competitors' retaliation into account when making their selling plans; a substantially higher proportion do not take into account at all competitors' price, service, product range or advertising policies in making selling plans; and approximately the same proportion are operating to make a reasonable living rather than to maximise profits. Greater distance from major competitors may be the main factor making entrepreneurs less actively competitive in this market than in the Moonah market. The considerable distance that outlets in Glenorchy market lie from the supermarkets in the regional shopping centre and in the C.R.A. was frequently mentioned as a "protection".[55]

Sandy Bay market.[56] The outlets of the Sandy Bay market form perhaps the most distinctive groceries market in Hobart. The entrepreneurs here feel that they operate in very small local competitive groups of less than five outlets, with the two aggressive large-scale supermarkets in the regional centre of Sandy Bay being included as the major competitor in virtually every group. Outlets in any other location, even in the C.R.A., do not appear to be of much significance as competitors.

In this upper income market, entrepreneurs compete actively; but the managers of the smaller stores match the price-service competition of the large-scale supermarkets with specialised service and quality goods and only limited price competition.[57] It is true that the majority

of the entrepreneurs' price at least some goods to meet competitors' prices, and that the majority adopt profit maximising policies. Yet half still use a customary trade margin or mark-up, and half unmodified Retail Traders Association Prices. In addition, only half the entrepreneurs here feel they have to take into account their competitors' general advertising, product range, price and service policies when making selling plans. Nevertheless, competition is active enough in this market for all grocery and general store entrepreneurs to feel that retail price control would be an advantage to their trade, while the supermarket entrepreneurs in the regional centre do not.

Bellerive market.[58] The outlets of the last market, the eastern suburban market of Bellerive, are isolated from the others by the River Derwent. Like the outlets of the Glenorchy and Sandy Bay markets, they function in very small local competitive groups of less than five outlets, with stores in their own business areas or isolated stores being unimportant as competitors. A distinctive feature of this market is the role of the nearest large supermarkets in the Central Retail Area as the major competitors of the outlets in each local group, rather than the large groceries stores in the regional centre of Bellerive itself. Despite this, there remains greater than a 60% chance that one main competitor of any outlet will be a large-scale grocery in the Bellerive centre. (This survey was made prior to the opening of the Rosny Regional shopping centre). A further distinctive feature of this market is the 25% chance that an important competitor of any outlet will be in a nearby neighbourhood shopping centre (business area class N3, J3), which is the highest for any market.

The entrepreneurs of this market are more active in price competition than in any other with the possible exception of those of the Moonah market. For example, more entrepreneurs price to match competitors' prices or to get the highest returns on at least some of their goods than use local trade margins or unmodified Retail Traders Association Prices. But there appear to be limits to the degree of competitiveness of the entrepreneurs in this market which are set by the high proportion of entrepreneurs here who wish to operate their business simply to obtain sufficient profits for a reasonable, comfortable, or fair living,[59] and the considerable distance which many outlets lie from their major competitors in the C.R.A. or the Bellerive shopping centre. The general characteristics of the Bellerive market, namely the small group competition and the greater importance of the C.R.A. and the lower order shopping centres as competitors' locations and the restricted competition by entrepreneurs, most closely resemble those of the other developing outer suburban market of Glenorchy.

Interpretation of the Gross Relations of Outlet Location and Outlet Competitive Characteristics

The identification of strong, predictable overall relations between groceries outlet location and outlet competitive characteristics has provided some evidence in support of the second hypothesis of this work,[60] and has permitted a description of the Hobart metropolitan groceries market. But a cause-and-effect interpretation of these relations remains to be made. The theoretical and empirical work which is summarised in Chapter one suggests that the relations should be considered as close, two-way, spatial-temporal, cause-and-effect associations, even though the precise forms of these associations have not yet been elucidated in either theory or practice for a retail groceries market.[61] It therefore seems that the relations observed in Hobart may be interpreted in the following manner. The interpretation will further

reveal the usefulness of the second hypothesis in helping to account for the locational structure of groceries retailing in Hobart.

Gross Relations, Outlet Location Classified by Class of Business Area and Outlet Competitive Characteristics

General interpretation. On the one hand, in Hobart, a change over space or time[62] in groceries outlet location from the many lower order (N2 to N4; J3, J4) to the few higher order (N1, J1, J2) business areas will be the cause of:

(i) a decrease in the number and an increase in the size of principal competitors;

(ii) a higher proportion of competitors located in the same business area or in a neighbouring business area of higher order status;

(iii) a change in local market form; from one comprised of imperfectly competitive, adapting, small enterprises and a few aggressively competitive, oligopolistic large scale firms; to one comprised solely of aggressively competitive, oligopolistic firms;

(iv) closer relations between the locational, operational and other characteristics of different groceries outlets as the local market in which they operate becomes more vigorously competitive and more homogeneous.[63]

Simmons and others have studied a similar sequence of events in retailing in other western cities.[64] Simmons attributes the current pattern of change both in the locations of retail outlets and in their competitive characteristics to attempts to take advantage of the possible increases in outlet scale which have been afforded by technological innovations in retailing (for example, by the introduction of self-service techniques).

On the other hand, in Hobart, another sequence of events will also occur. A decrease in the number and an increase in the size of the principal competitors of Hobart's groceries outlets, and/or an increase in the proportion of competitors in the highest order business areas, and/or a change towards a more homogeneous, vigorously competitive oligopolistic market will be the cause of a change in groceries outlet location from lower order to higher order business areas. This interpretation also conforms with the observations of Simmons and others.[65] Simmons describes how increased competition in many trades in Chicago led to the demise of the small corner store and the convenience good shopping centre, and to the rise of the regional shopping centre; the changes in market conditions followed entrepreneurs' attempts to take advantage of the possible increases in outlet scale afforded by technological innovations in retailing, such as the introduction of self-service techniques.

The second sequence of events may become linked with the first to form the interrelation of outlet location by class of business area and outlet competitive characteristics as shown in Fig. IV.4. Changes in other exogenous or endogenous variables may affect the cause-and-effect relations, but the different ways in which they do so are more properly discussed later when the primary and secondary linkages of outlet location and outlet competitive characteristics are examined.

FIG. IV.4 - IV. 5

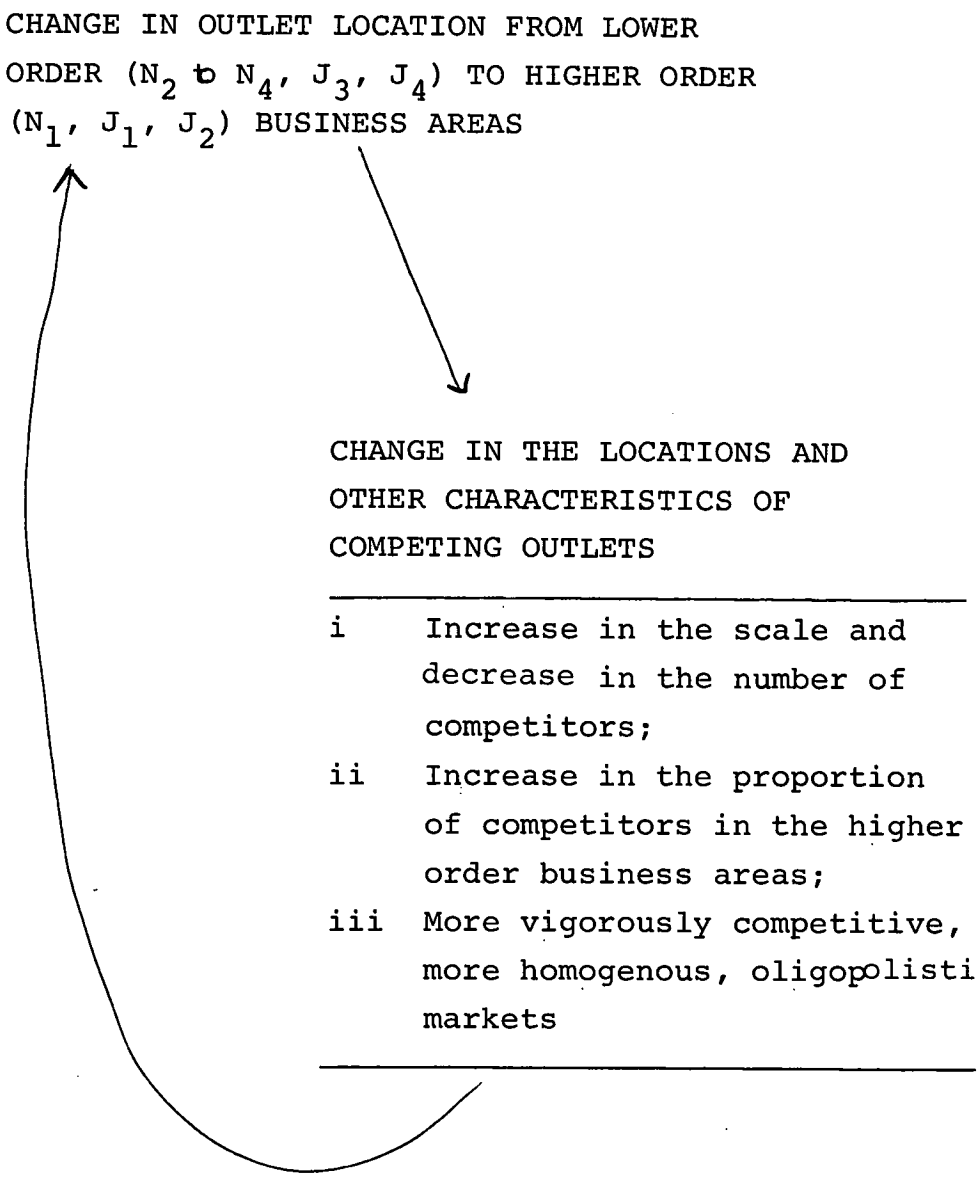


FIG. IV.4 INTERDEPENDENCE OF OUTLET LOCATION BY CLASS OF BUSINESS AREA AND THE LOCATION AND OTHER CHARACTERISTICS OF COMPETING OUTLETS, GROCERIES OUTLETS, HOBART

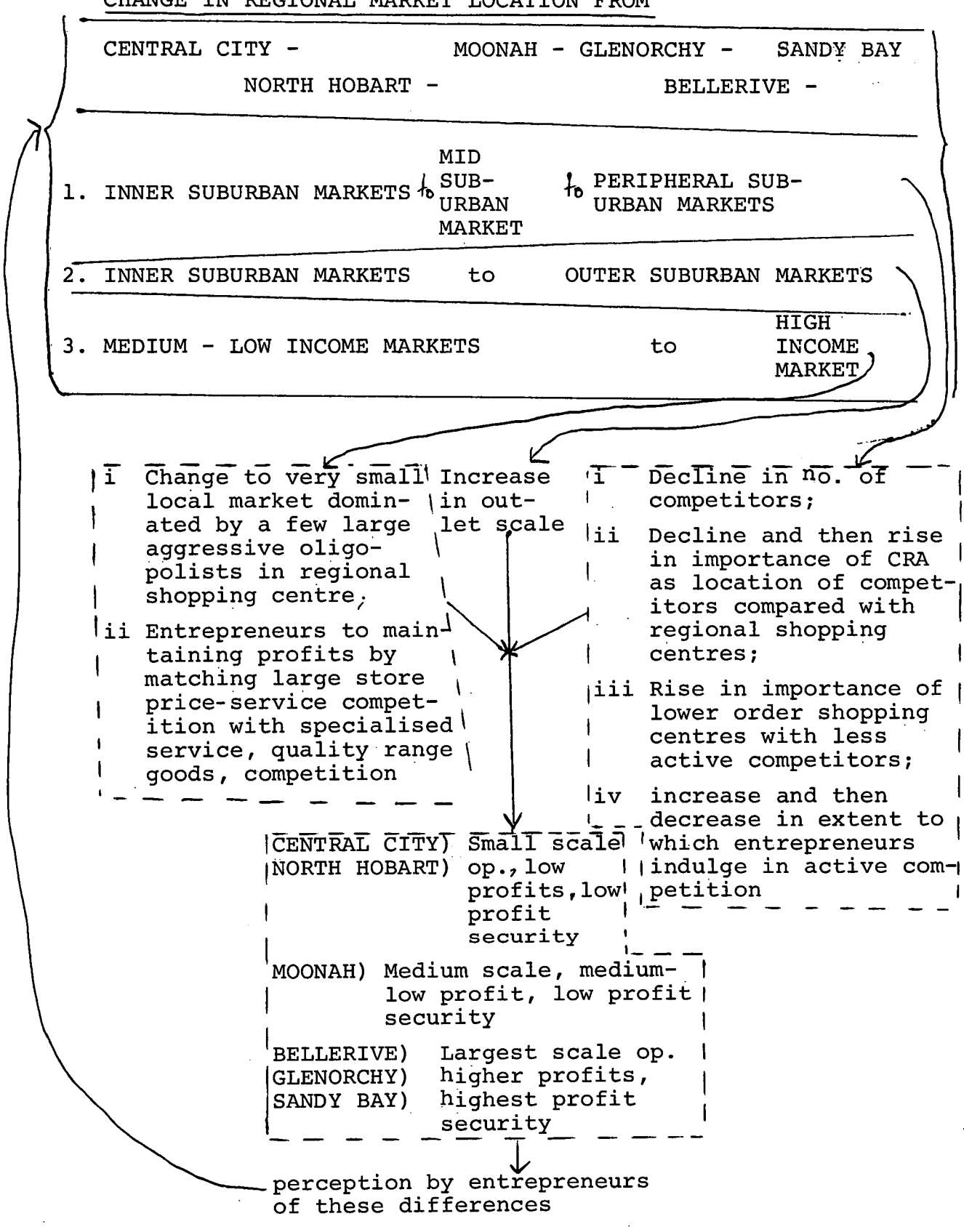


FIG. IV.5 INTERDEPENDENCE OF OUTLET LOCATION BY REGIONAL MARKET WITH THE LOCATIONS AND OTHER CHARACTERISTICS OF COMPETING OUTLETS, GROCERIES OUTLETS, HOBART

Fig. IV.4 shows how the mutual relations of outlet location and the locations and other characteristics of competing outlets will operate in very similar ways within the heirerchy of N centres and the heirarchy of J centres. This is in accord with the previous finding that no real difference existed between the competitive characteristics of the outlets of all N business areas and the competitive characteristics of the outlets of all J business areas.[66] It is also in accord with the previous finding that spatial or temporal changes from sites in N business areas to sites in J business areas of equivalent order represent no significant change in location, and thus no interraction with other variables is set up.[67]

Explanation of the locational structure of groceries retailing in Hobart in 1964. The mutual relations of outlet location by class of business area and outlet competitive characteristics, when taken with the mutual relations of outlet scale and outlet location (Fig. IV.1), help further the explanation of some of the outstanding features of the locational structure of groceries retailing in Hobart in 1964.[68] Firstly, increased scale and profits are attainable in upper order business areas, for entrepreneurs here can increase the number of their customers through their very active competition against a small number of competitors in an oligopolistic market. Upper order business areas will therefore be very attractive to many groceries outlet entrepreneurs. Secondly, the scale and profits of outlets in successively lower order business areas may be assumed to decline, for the entrepreneurs compete much less actively in an expanding spatial market which contains an increasing number of competitors in different orders of business area. The profit levels of outlets in lower order business areas are probably to some extent protected by the imperfections of the market in which they function. Nevertheless, the outlets of the lower order business areas suffer erosion of their takings and profits by their aggressive large-scale competitors in the nearest regional centres. Bearing these conditions in mind, the following features of the locational structure of groceries retailing in Hobart in 1964 are readily explicable:

(i) that upper order N and J centres were most important in terms of the numbers of groceries outlet per centre, and in terms of the proportions of business areas possessing groceries outlets;

(ii) that the nine largest scale outlets (supermarkets) were exclusively located in the higher order business areas;

(iii) that a large number of middle-size outlets were concentrated in middle order business areas;

(iv) that numerous small-scale outlets (general stores) still survived and were concentrated in lowest order business areas;

(v) that the groceries outlets of the highest order business areas were composed of very large-scale outlets, with very small-scale outlets gaining the remainder of the customers in these areas.

Gross Relations: Outlet Location Classified by Regional Market and Outlet Competitive Characteristics

General interpretation. Like the overall associations of groceries outlet location by class of business area and outlet competitive characteristics, the overall associations of groceries outlet location by regional market with outlet competitive characteristics can be interpreted as two-way cause-and-effect relations.[69] Firstly, a change over space or time[70] in outlet location from inner suburban markets (Central City, North Hobart), to mid suburban markets (Moonah), to peripheral suburban markets (Glenorchy, Bellerive) will be the cause of:

(i) a decline in the size of the local groups of competitors in which outlets operate;

(ii) a sharp decline and then a rise in the importance of the Central Retail Area as the principal location of competitors vis-a-vis the regional market's major regional shopping centre;

(iii) an increase in the importance of less active competitors in neighbouring lower order business areas in local competitive groups;

(iv) an increase and then a decrease in the degree to which entrepreneurs indulge in active competition, leaving apart the entrepreneurs of the major supermarkets in the regional centres.

Also, a change over space or time in outlet location from middle and low income markets (Central City, North Hobart, Moonah, Glenorchy or Bellerive) to a high income market (Sandy Bay)[71] will be the cause of:

(i) a change to very small local markets dominated by a few large aggressivly competitive oligopolists in regional shopping centre;

(ii) a tendency for outlets to maintain profits by matching vigorous large store price-service competition with small store price and specialized service competition and competition through ranges of quality goods.

In addition, it will be remembered that a locational change from inner suburban markets to outer suburban markets will produce an increase in outlet scale (Figure IV.2).

The effect of all these changes may reasonably be presumed to make the outlets of inner city markets of smaller scale, lower profitability and lower profit security, but with their profits to some degree protected by the limited competition in these markets.

The outlets of the mid-suburban market, which is bounded by the inner city and the peripheral suburban markets, will be medium scale, medium-low profit, and with a low degree of profit security owing to the greater degree of competitiveness of the outlets in local markets. The outlets of the outer suburban ~~low~~-medium-high income markets will be the largest scale and have the highest profits, and they will also have the highest degree of profit security owing to the limited competition afforded by competitors in local markets. The outlets of the outer suburban high-income market will have the largest scale and highest profits of all though possibly not the highest profit security, since competition is active here.

These conclusions permit a second complementary interpretation of the overall associations of outlet competitive characteristics and outlet location by regional market. Retailers may perceive that the peripheral medium-income suburban markets have the possibility of larger scale operations, less aggressive competition from entrepreneurs in the C.R.A. because of the modifying effect of distance, and any competition from aggressive entrepreneurs is restricted to the few in one regional centre alone, while remaining competitors are relatively small and inactive. Retailers may also perceive that the high income suburban market offers the possibility of very large-scale operations, with protection of profits for any small outlets by competition in specialized service. These differences in the competitive characteristics and scales of outlets in different markets may themselves be the cause of a change in outlet location from inner to outer suburban areas.

The resultant mutual relations of outlet location by regional market and outlet competitive characteristics are summarized in Figure IV.5.

The pattern of relations shown in Figure IV.5 is in accord with the findings of studies of the suburbanization of retailing in western cities. Outer suburban markets are of the venue of fewer, larger scale, highly successful retail operations normally competing with outlets in planned regional shopping centres;[72] older inner suburban markets are the area of high density small store survivers, which change hands at a high rate, and which compete especially[73] with outlets in the C.R.A. and with neighbouring small stores. Upper income areas are the venue of a very large-scale units but also have a proliferation of smaller stores which compete in quality and service.[74]

Explanation of the locational structure of groceries retailing in Hobart in 1964. The pattern of relations shown in Figure IV.5 clearly helps to account for important features of the locational structure of groceries retailing in Hobart in 1964.[75] It explains why the Central City market was characterized by an overwhelming predominance of small general stores, and why the upper income market of Sandy Bay and an outer suburban market like Glenorchy has attracted relatively greater numbers of large scale supermarkets and medium scale groceries. It also explains why the regional centre J2 in the higher income Sandy Bay market contained in 1964 the two largest size groceries outlets in the whole of Hobart.

PRIMARY AND SECONDARY RELATIONS - LOCATION, SCALE AND COMPETITION

The observed gross interrelations between outlet location and outlet scale, and between outlet location and outlet competitive characteristics help to account for the locational structure of groceries retailing in Hobart in 1964. They also give some support to the first and second hypotheses of this work. But an examination is required of the principal ways in which the interrelations may be effected through the impact of other exogenous or endogenous variables that is, an examination is required of the important primary and secondary linkages of scale and competitive characteristics with other variables and with location.[76] First, such an examination will give still further support to the two hypotheses of this work; it will help to show that not only may the hypotheses be used to identify the more important variables associated with the observed pattern of retail location, they may also be used to identify the precise cause and effect relations between observed retail locations and such variables. Second, such an examination will give added substance to the explanation of the locational structure of Hobart's retailing which has already been provided by the overall relations.

Any pattern of primary and secondary relations between variables describing characteristics of Hobart's groceries outlets has been assumed to be relatively stable over a middle-run period.[77] This holds for the relations between outlet location, outlet scale, outlet competitive characteristics and other endogenous variables. But the pattern itself is very much dependent upon the current state of certain exogenous variables which undergo spasmodic, unpredictable and often violent change (for example, the state of the technologies of retailing and of private transportation), and upon the current state of certain slowly changing exogenous variables (for example, the availability of capital for investment in retail enterprise; the demographic characteristics of the urban population).[78] In the discussion that follows therefore, selected primary and secondary relations are treated in the context of the current state of the exogenous variables which create them.

Scale, Location and Self-service Groceries Retailing

Secondary Linkages: Outlet Scale with Outlet Costs, Price, Range of Goods and Service

Between about 1950 and 1960, in Hobart as in other Australian cities, came the extensive reorganization of groceries retailing which was accompanied by a switch to self-service operations. (Table 4.6; Statistical Appendix 5 - Tables 5.14 to 5.15). The findings of theory and of empirical studies of groceries

retailing[79, 80] suggest that, in Hobart as elsewhere, the overall relations between outlet scale and outlet location over the current middle-run period will be created by the impact of self-service retail technology on the costs, prices, ranges of goods, services, advertising expenditures, and customer usage of retail groceries outlets.

The possibility of using self-service techniques provides for the substitution of fixed capital expenditures on display fixtures and other equipment for high variable expenditures on the labour directly involved in or supervising selling. This produces a lowering of unit costs. A further lowering of unit costs will be achieved by the elimination of high variable expenditures on traditional customer services (for example, credit, delivery services) as well as on the service of personal selling. Traditional services will be eliminated unless customers come from a particular socio-economic group with special demands for them, for example from medium-high or high income groups.[81]

Now lowered unit costs imply the retail sale of a greater volume of goods at a given unit cost. The sale of a greater volume at a given unit cost can also be accomplished by requiring customers to select from a wider variety of goods than previously. Lowered unit costs will therefore be followed by the extension of ranges of goods stocked within products (such as varieties of jam), or of the range of products (such as jam, biscuits),[82] or of the range of product groups (such as groceries, greengroceries).

The changes in outlet unit costs and range of goods will provide incentives for radical increases in scale of output. Radical increases in scale can be achieved by lowering the prices of at least some of the extended range of goods which are in high demand ('specials'), by adopting some special pricing techniques on the remainder which are only possible with an increased extended range of goods (price/product discrimination),[83] by allocating savings from labour and services to expenditures on the advertising and promotion of goods in extended product ranges, and even by the diversion of some savings into new sorts of customer service (for example, the provision of customer car parks).[84]

An increase in scale and profits with the use of these techniques will depend upon the ability of lowered prices, increased expenditures on advertising and promotions, and extended ranges of goods and services to provide for an increase in takings that will more than offset the increases in expenditures and the "losses" from lower prices. The increased takings will have to come from within an existing market area and from an extended market area. That is, an increase in scale will depend upon the ability of outlet entrepreneurs to attract a satisfactorily increased number of customers from the range of distances encompassed by his existing market area and from still greater distances.[85] That is, an increase in scale will depend on the entrepreneur's ability to effect satisfactory changes in the size and penetration of his market area.

TABLES 4.6 - 4.7

TABLE 4.6

PROPORTIONS OF THOSE ESTABLISHMENTS SELLING GROCERIES,[a] WHICH WERE SELF SERVICE,[b] 1956-57 and 1961-62

	1956-57	1961-62
SYDNEY	.05	.14
MELBOURNE	.10	.16
BRISBANE	.09	.16
ADELAIDE	.03	.14
PERTH	.12	.23
HOBART	.04	.14

a The number of establishments selling groceries which formed the basis of these tables were the numbers of establishments recording sales in the groceries commodity classification of the Australian Commonwealth Retail Census form. These included establishments whose entrepreneurs recorded their type of business as 'grocers', plus establishments of other types of business from which groceries sales were made.

b Self-service stores which sold groceries were establishments whose census returns recorded sales of groceries and indicated that they were self-service stores using a check-out point.

Source: Australia, Commonwealth Bureau of Census and Statistics, Census of Retail Establishments Year Ended 30th June, 1957, 1962, (Canberra: The Bureau).

TABLE 4.7

ASSOCIATIONS OF OUTLET SCALE AND OUTLET LOCATION WITH OUTLET OPERATIONAL CHARACTERISTICS

LOCATION	SCALE - Mean Av. Weekly Takings ($A)	Mean Av. % Goods Sold Self-Service	Mean Av. Weekly Tkgs /Manhours Worked(a)	Pn Outlet with Delivery	Pn Outlet with Credit	Mean Av. Amount Out on Credit	Mean Total No. Prod. Grps. Omitted	Mean Total Groceries Products Omitted	Mean Overall Range of Goods Index	MEAN RANGE OF GOODS : No. Varieties 1. Baby Food	2. Tinned Milk	3. Tinned Peas	4. Jam	Mean % of Takings from Cut-Price Specials	Mean Wkly Advert. Expenditure ($A)	Pn of Outlets with Car Parks	Av. Pn of Customers from Within 1 Mile
BUSINESS AREA CLASS																	
N1	2733	44	9.80	.68	.63	163	7.1	27	331	75	7	6	30	7.1	29	.26	.39
N2	1200	43	5.84	.86	1.00	601	9.0	25	253	52	6	5	25	6.2	4	.22	.60
N3	880	12	4.80	.89	.87	341	8.4	31	177	31	3	4	17	4.7	5	.21	.67
N4	679	6	4.86	.86	.92	634	8.3	27	165	34	4	4	17	6.5	1	.18	.74
J1	1763	27	5.54	.88	.83	91	6.8	35	220	41	6	5	39	5.4	28	.11	.41
J2	12100	95	7.66	.50	.50	1000	9.5	7	697	159	11	9	86	15.0	130	1.00	.33
J3	842	32	3.38	.75	1.00	819	8.3	29	259	38	5	5	33	3.6	2	.00	.70
J4	639	6	3.82	.50	1.00	470	7.3	37	130	16	3	3	15	1.0	0	.13	.85
REGIONAL MARKET																	
CENTRAL CITY	1084	17	5.08	.80	.88	246	7.7	33	186	34	5	5	26	4.0	10	.05	x
N. HOBART	774	15	5.60	.79	1.00	473	7.5	28	186	28	4	4	20	4.0	2	.01	x
MOONAH	1182	12	5.06	.64	.73	365	8.3	31	190	31	5	4	21	7.0	9	.22	x
GLENORCHY	1337	12	5.86	.90	.94	888	9.3	20	209	42	5	4	30	11.7	10	.70	x
SANDY BAY	2192	33	5.82	.93	.75	719	8.1	32	269	37	5	5	30	3.5	18	.18	x
BELLERIVE	1223	38	6.66	1.00	1.00	470	8.8	26	256	55	6	5	30	7.9	6	.31	x

x not estimated

a Mean weekly wages/takings are unreliable as an index of labour costs per unit output, because the wages of owner-managers in lower order business areas (especially N4, J4) and in inner suburban markets are very poorly estimated.

Sources: Statistical Appendix 4 - Tables 4.1, 4.11, 4.12, 4.22, 4.46 to 4.51, 4.55, 4.62, 4.64; Statistical Appendix 5 - Table 5.9(i); Statistical Appendix 7 - Table 7.1.(i).

FIG. IV.6

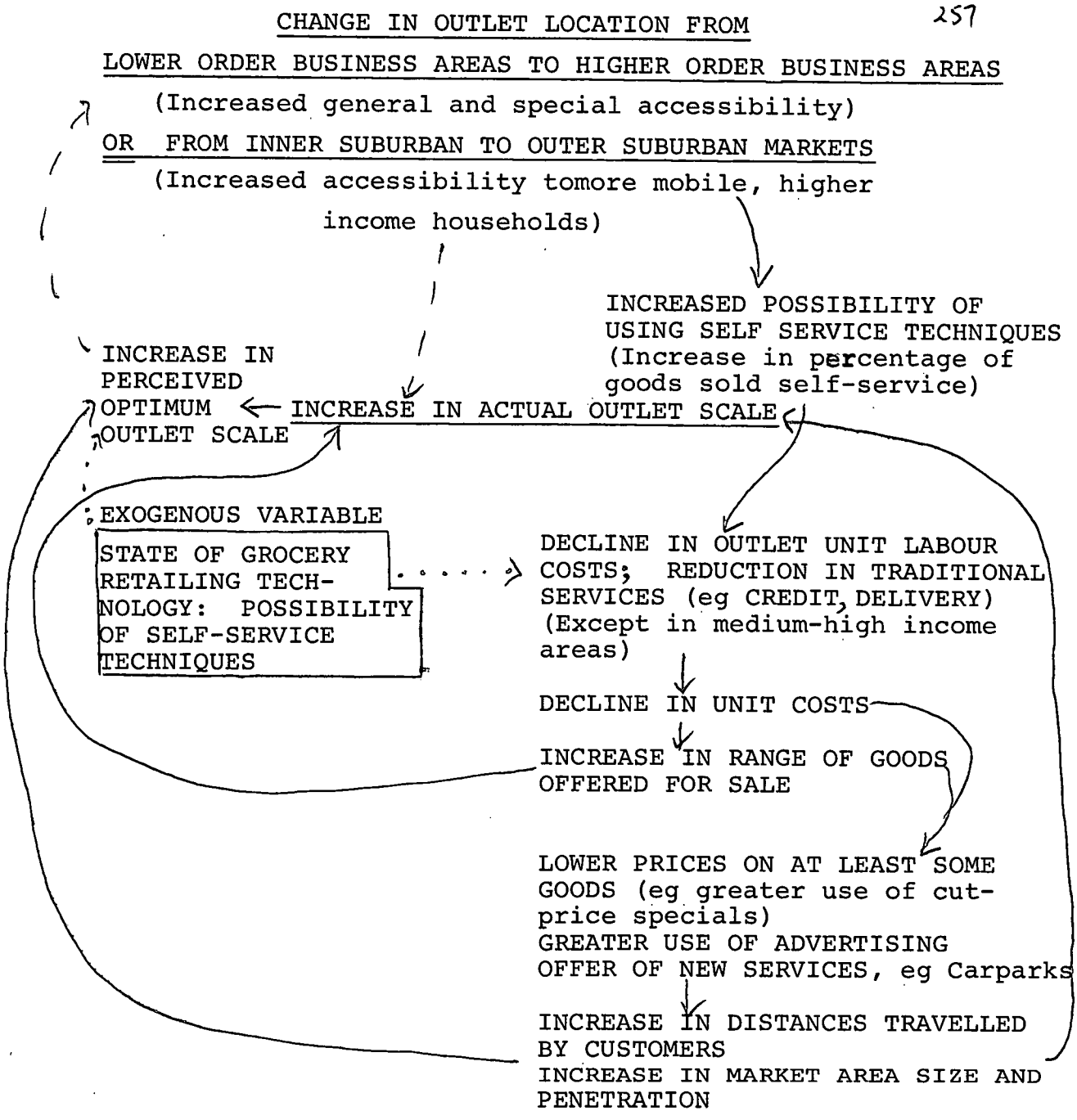


FIG. IV.6 SELECTED PRIMARY AND SECONDARY LINKAGES MAKING UP THE GROSS RELATIONS OF OUTLET LOCATION AND OUTLET SCALE

The changes which are described are envisaged as occurring firstly, temporally, and secondly, spatially. For, given the assumptions underlying this work, a pattern of temporal relations will be reflected in an analagous pattern of spatial relations, and a pattern of spatial relations will be a reflection of an analagous pattern of temporal relations. The assumptions and the nature of spatial and temporal relations are elaborated in Chapter Three. The changes which are described are also general changes which will occur on the average for the whole group of retail outlets comprising a retail trade, not necessarily the changes which will occur for any particular outlet.

But different locations in different classes of business area or in different markets will offer differing opportunities for the entrepreneur to satisfactorily increase the size and penetration of his market area. The opportunities will increase with location in increasingly higher orders of business area. For the higher the status of the business area, the greater its general access ability to customers through its greater nodality with respect to the general pattern of the urban transport network and traffic flows (Figure II.5). In addition, the higher the status of a business area the greater its special accessibility to customers through the increase in the number of complimentary and comparison shopping opportunities which it provides. The entrepreneur's chances to satisfactorily increase the size and penetration of his market area will also vary between locations in inner suburban and outer suburban markets. They will be lower in the older age, smaller household, poorer, less mobile, inner suburban markets, and greater in the younger, larger, household, richer, more mobile, outer suburban markets (Table 2.17).

The Network of Primary and Secondary Linkages of Outlet Scale and Location

In the period following the introduction of self-service groceries retailing techniques, it will therefore be expected that groceries outlets will display the following pattern of relations between outlet scale and outlet location. Changes in outlet location from lower order to higher order business areas or from inner to outer suburban markets will be dependent upon the perception of the spatial variations in the possibilities of using self-service techniques and increasing outlet scale and profits. On the other hand, actual increases in outlet scale will themselves be immediately dependent upon changes in outlet location from the less accessible lower order to the more accessible higher order business areas, or from inner suburban to outer suburban markets. Increases in outlet scale will also be dependent upon the pattern of secondary linkages of outlet scale with other outlet operational characteristics: increases in scale will depend upon lower labour costs per unit output with the use of self-service techniques, a decline in the provision of traditional customer services (unless stores cater to a medium high or high income group), lower prices, increased range of goods, increased advertising expenditures, change in the type of services offered, and increased market area size.

But then again, any increases in market area size and actual outlet scale so engendered will contribute further to the perception by entrepreneurs of the spatial variations in output and profits possibilities, and thus to further changes in location from lower to higher order business areas, and from inner to outer suburban markets. Figure IV.6 summarizes the whole pattern of the suggested primary and secondary linkages between variables which make up the overall interrelations of outlet scale and outlet location under present conditions of self-service groceries retailing.

If the relations shown by Figure IV.6 hold, then the data for the cross-section of Hobart's groceries outlets in 1964 should show the following spatial associations. A change in groceries outlet location from lower order (N2 to N4; J3, J4) to higher order (N1, J1, J2) business areas, or from inner suburban markets (Central City, North Hobart) to outer suburban markets (Moonah, Glenorchy, Sandy Bay, Bellerive) should be associated with:

(i) an increase in outlet scale;

(ii) an increase in the percentage of goods sold self-service;

(iii) a decrease in outlet unit labour costs (increase in outlet takings/manhours worked ratio);

(iv) a decline in the provision of traditional customer services, for example, credit; except possibly in medium high or high income areas, such as the medium high or high income outer suburban markets, or in the J2 business area at the centre of the highest income market;

(v) an increased outlet range of goods or of product groups or of products or of any combination of these;

(vi) lower prices on at least some goods, shown for example through increased use of cut-price 'specials';

(vii) increased expenditures on advertising;

(viii) increase in the variety of new types of service offered; for example increase in the proportion of outlets with car parks;

(ix) increase in outlet market area size shown by a decrease in proportion of outlet customers attracted from places of origin less than a mile away.

Table 4.7 provides evidence that these relations did hold for the cross-section of groceries outlets in Hobart in 1964.[86] It may therefore be concluded that the pattern of relations which is summarized in Figure IV.6 make up the hypothesized and observed overall relations of outlet scale and outlet location, and thus help to account for the observed locational structure of groceries retailing in Hobart in 1964.

Competition, Location and Self-service Groceries Retailing

Secondary Linkages: Effects of Outlet Scale on Outlet Competitive Characteristics

In theory, a technological innovation like self-service, which gives rise to conditions for an increased scale of firm, also gives rise to conditions for an accompanying decline in the relative numbers of firms and a change in market structure. The larger and

the fewer the firms, the greater the tendencies either towards aggressive oligopolistic competition by price, service, advertising, and other forms of product differentiation, or towards moves to a greater or less extent voluntary and informal among oligopolists to restrain competition.[87] In the case of the retail groceries industry, an increase in the scale of outlets tends to be accompanied more by aggressive competition than by attempts to restrict competition,[88] though it has been noted that alternating periods of price and restrained service competition, and service and restrained price competition sometimes occur.[89]

Secondary Linkages: Effects of Outlet Competitive Characteristics on Outlet Price and Non-Price Offers and Market Area Size and Penetration

The effects of a change towards aggressive oligopolistic markets with increase in scale of outlet are difficult to determine. Evidence for the groceries industry seems to show that increasingly intense oligopolistic competition will be confined to increasingly larger scale outlets, and will force decreases in outlet price levels, decreases in the prices particularly of high demand goods, increases in advertising expenditures, increases in the range of goods and a decrease in the services provided. This will sometimes be followed by increases again in the services provided and in the prices of some goods in order to raise drastically reduced gross and net profit margins. Competition thus will result in a situation where large-scale outlets will be similar in that they will have lower prices on at least some high demand goods, possibly a lower price level, high ranges of goods and products, and high advertising expenditures, although they may be differentiated with respect to the precise combinations of prices and services provided.[90] The size of the market area obtained by any one large-scale outlet under these conditions will be dependent on its own current price, product range advertising and service level, its own location, and the locations, prices, advertising expenditures, services, and the ranges of goods and products of the other members of the group of large-scale competitors.[91]

But a change towards aggressive oligopolistic markets with increase in outlet scale in the groceries industry still seems to leave room for many smaller outlets of varying scales, competing with "fair trade" or "quiet life" ideals. Their entreprenuers are, however, not unresponsive to the competition afforded by the large scale outlets' aggressive price, product and advertising policies.[92] Competition with large-scale outlets by "service" is stressed.[93] It appears that a situation will arise where price offers of small-scale outlets will vary but remain high, though they will be related to the large-scale outlets' price levels; and an extension of services to varying degrees will occur and be related to the lower level of service provision by large-scale competitors. The size of the market area of the small-scale outlet under these conditions will be most dependent on the prices and services offered by the outlet and on its location, and on the locations, prices and services provided by large-scale competitors. The size of the market area of a small-scale outlet will be dependent to a much less extent on the

advertising, price, range of goods and service offers of other imperfectly competitive small-scale outlets, though the latter may help to maintain the outlet's market area by abstaining from aggressive competition.

Network of Primary and Secondary Linkages of Outlet Scale, Outlet Competitive Characteristics and Outlet Location

Now it has already been shown that increases in outlet scale and changes in groceries outlet competitive characteristics will be interrelated with changes in outlet location from lower order to higher order business areas, and from inner suburban to outer suburban markets (Figures IV.1, IV.2, IV.4, IV.5). It has also been shown that increases in outlet scale will be dependent upon certain changes in outlet operational characteristics and market area size, which can occur with the changes in outlet location given the possibility of self-service groceries retailing (Figure IV.6). All these relations may be added on to the secondary linkages of outlet competitive and operational characteristics which have just been described. A complex pattern emerges of linkages between groceries outlet scale, groceries outlet competitive characteristics and groceries outlet location. This pattern is best summarized by Figure IV.7.

If the pattern of linkages in Figure IV.7 holds, the data for the 1964 cross-section of groceries outlets in Hobart should display the following spatial associations. Variations in outlet location from lower order (N2 to N4; J3, J4) to higher order (N1, J1, J2) business areas, and from inner suburban markets (Central City, North Hobart) to outer suburban markets (Moonha, Glenorchy, Sandy Bay, Bellerive) should be associated with:

(i) an increase in outlet scale;

(ii) a decline in the number of an outlet's competitors;

(iii) increasingly aggressive oligopolistic competition; shown by increasing attention by entreprenuers to competitors' retaliation; increasing attempts by entrepreneurs to take into account competitors' current and expected price and non-price offer policies in devising selling plans;

(iv) possibly lower price levels; increased variety of goods and/or products; greater advertising expenditures;

(v) an increase in the distances travelled by the outlets customers;

(vi) major competitors increasingly confined to higher order locations;

(vii) major competitors of increasing scale, with possibly lower price levels, larger ranges of goods, greater advertising expenditures, and possibly lower service provision.

FIG. IV.7

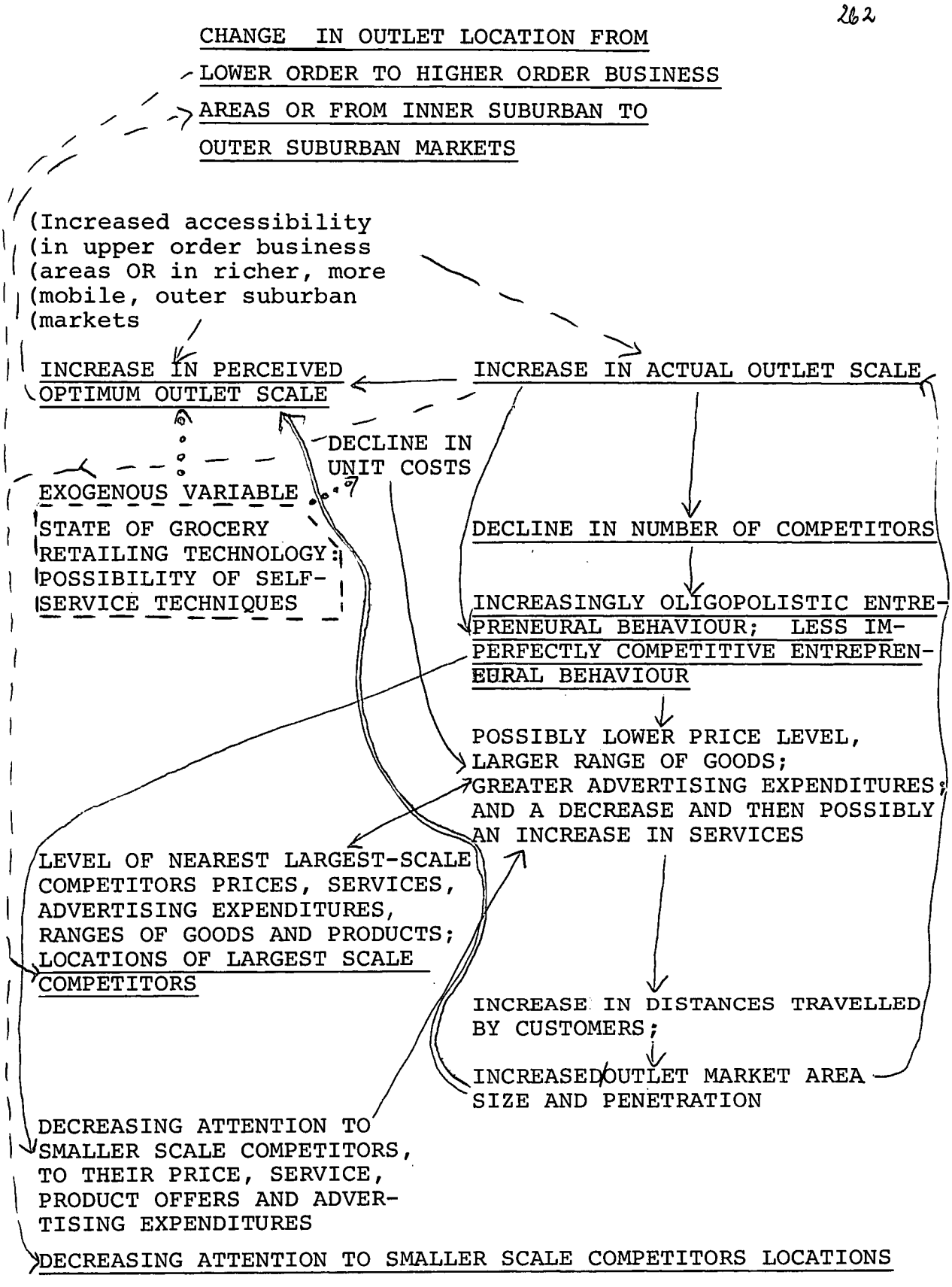


FIG. IV.7 SELECTED PRIMARY AND SECONDARY LINKAGES MAKING UP THE GROSS RELATIONS BETWEEN OUTLET LOCATION AND OUTLET SCALE, AND OUTLET LOCATION AND OUTLET COMPETITIVE CHARACTERISTICS

(Cont.)

FIG. IV.7 (Cont.)

The changes which are described are envisaged as occurring firstly, temporally, and secondly, spatially. For, given the assumptions underlying this work, a pattern of temporal relations will be reflected in an analagous pattern of spatial relations, and a pattern of spatial relations will be a reflection of an analagous pattern of temporal relations. The assumptions and the nature of spatial and temporal relations are elaborated in Chapter Three. The changes which are described are also general changes which will occur on the average for the whole group of retail outlets comprising a retail trade, not necessarily the changes which will occur for any particular outlet.

TABLE 4.8

TABLE 4.8

ASSOCIATIONS OF OUTLET LOCATION, OUTLET SCALE AND OUTLET COMPETITIVE CHARACTERISTICS WITH OUTLET OPERATIONAL CHARACTERISTICS

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
LOCATION	SCALE - Mean Av. Weekly Takings ($A)	COMPETITION - Pn Fearing Comps. Retaliation	COMPETITION - Pn tkg Comps. Policies into Account	COMPETITION - Pn Having < 5 Competitors	Pn. with Delivery	Mean Relative Price Index	Mean Price(c) Tinned Baby Food	Mean Av. Weekly Advertising Expdn.	Mean Total Groceries Products Omitted	Mean Overall Range of Goods Index	Av. Pn of Customers from Within 1 mile	Locations of Competitors(a)	Av. Mean Relative Price Indices of Competitors	Av. Mean Overall Range of Goods. Indices of Comps. ('00s)	Av. M. Wkly Advertg. Expenditure of Competitors	Pns. of Competitors with Delivery
BUSINESS AREA CLASS																
N1	2733	.10	.63	.68	.68	.967	9.2	29	27	331	.39	J1,N1,J2	See Values in Clmn 7 for outlets in each of the business area classes cited in Colmn 13 as Location of Competitors	See Values in Col. 11 for outlets in each of the business area classes cited in Col. 13 as Location of Competitors	See Values in Col. 9 for outlets in each of the business area classes cited in Col. 13	See Values in Col. 6 for outlets in each of the business area classes cited in Col. 13
N2	1200	.13	.30	.47	.86	.978	9.2	4	25	253	.60	J1-J3,N1-N3				
N3	880	.02	.47	.68	.89	.981	10.0	5	31	177	.67	J1-J3,N1-N3				
N4	679	.04	.56	.59	.86	.990	10.2	1	27	165	.74	J1-J4,N1-N4				
J1	1763	.22	.66	.16	.88	.967	9.3	28	35	220	.41	J1				
J2	12100	1.00	1.00	.50	.50	.944	7.0	130	7	697	.33	J1,J2				
J3	842	.00	.37	1.00	.75	.974	9.5	2	29	259	.70	N1-N3,J2-J3				
J4	639	.00	.81	.50	.50	.991	9.6	0	37	130	.85	N1-N4,J1-J4				
REGIONAL MARKET																
C.CITY	1084	.07	.49	.40	.80	.985	9.7	10	33	186	x x	J1,J3-4,N2-4				
N.HOBART	774	.01	.71	.32	.79	.979	10.3	2	28	186	x x	J1,N1-3,J3				
MNAH	1182	.19	.70	.67	.64	.977	9.2	9	31	190	x	N1-4, J2-4				
G'ORCHY	1337	.03	.46	.87	.90	.990	9.5	10	20	209	x x	N1-4,J2-4				
S. BAY	2192	.18	.37	.93	.93	.981	10.9	18	32	269	x x	J2				
B'RIVE	1223	.00	.25	.93	1.00	.982	9.1	6	26	256	x	J1-3, N1-3				

x Not estimated

a Locations are included only if > .20 of the entrepreneurs felt they had major competitors there.

Sources: Statistical Appendix 4 - Tables 4.1, 4.12, 4.24, 4.25, 4.49, 4.50; Statistical Appendix 5 - Tables 5.2 to 5.4 5.9.(i); Statistical Appendix 7 - Table 7.1.(i).

Table 4.8 reveals that these relations in general did appear to hold for the cross-section of groceries outlets in Hobart in 1964.[94]

The appearance in Hobart of the relations shown in Figure IV.7 gives added substance to the explanation of the locational structure of the Hobart grocerie~~s~~ trade which was provided by the analysis of the gross relations of outlet location with outlet scale and outlet competitive characteristics respectively. It also gives additional support to the two major hypotheses of this work:

(i) "that the locations of the outlets of a retail trade become significantly interrelated in predictable ways with many other of their own scale, operational, customer, and customer trip characteristics";

(ii) "that the locations and other characteristics of the outlets of a retail trade become significantly interrelated in predictable ways with each others' locations and other characteristics in the process of competition for revenue."

Scale, Competition, Location and the Socio-Economic Characteristics of the Urban Population

Secondary Linkages: Outlet Scale with Outlet Customer Characteristics and Outlet Price and Non-Price Offers

There is a final set of variables which primarily influence outlet scale, but which thereby effect the whole pattern of the relations of outlet scale, outlet location and outlet competitive characteristics in the metropolitan groceries market. These variables are the socio-economic characteristics of the customers served by the outlet. The average number of juvenile dependents per customer household, the average income per person per customer household, and the average number of persons per customer household are endogenous variables describing the socio-economic characteristics of an outlet's customers. Short-run fluctuations in these variables will occur as the entrepreneur makes decisions which affect the size and shape and penetration of his market area, and thereby the types and numbers of customers attracted to his outlet. In addition, the size, age structure and income of the households served by an outlet will be affected by an important exogenous variable, the nature of the urban population - that is, the level and spatial distribution of the urban population, the current demographic characteristics of the urban population and the current spatial distribution of the urban population's different socio-economic groups.[95] The fewer, more widely-spaced higher order business areas within the boundary of the urban area will have the highest general and special accessibility to customers in the metropolitan market, but will be relatively more accessible to any customers from mobile higher income households or to customers with the less time-consuming responsibilities of smaller households or households without

dependents; they will be relatively less accessible to any customers from lower income households or to customers with the more time-consuming responsibilities of larger households or households with greater numbers of dependents. Also, locations in outer suburban markets will have greater accessibility to high growth, younger household, medium-high income areas than those in inner suburban markets (exemplified for Hobart in Figure II.13, Table 2.17).

Changes in customer household size and age structure on the one hand, and in customer household income on the other, will have an effect on outlet scale. In theory,[96] it seems that increases in customer household size and/or in the number of juvenile dependants per household might equally well provide for an increase or a decrease in outlet scale. On the one hand, increases in outlet scale will result as increases in the size and/or youthfulness of customer households leads to increased household demand for the 'product' of an outlet with given prices, range of goods, and services; household demand may still be further increased by the entrepreneur lowering his prices, extending his range of goods or altering the services he provides. On the other hand, customers (particularly housewives) from households of an increased size and/or with an increased number of juvenile dependants will have lower mobility, so that an increase in the size and/or a decrease in the age of household served by an outlet may lead to decreased market area size and penetration, and a decrease in outlet scale. Very little is known about the elasticities of demand of households of different size and age structure; thus, very little is known about the precise increases in individual household demand which may occur with increase in household size and/or increases in the number of juvenile dependants, especially following appropriate alterations of outlet price and non-price offers. Also, little is known about the precise decreases in market area size and penetration which will occur as a result of an increase in the size and youthfulness of customer households. As a result, the effect of changes in household size and age structure on outlet scale are indeterminate.

However, more can be said about the effects of an increase in customer household incomes. An increase in per capita income per household will lead to an increased individual household demand for the 'product' of a groceries outlet with given prices, range of goods and services. This will lead to an increase in outlet scale. Further increases in outlet scale will be gained by the outlet entrepreneur lowering prices, extending range of goods, and making appropriate alterations to the services provided, although higher income groups may be less responsive to price changes and more responsive to alterations in the range of goods and services than lower income groups. An increase in household income will also lead to an increase in outlet scale through its effects on outlet market area size. The higher car ownership rate of upper income groups will lead to greater distances travelled by higher income customers to an outlet with

a given combination of price and non-price offers. Appropriate alterations in the price and non-price offers may lead to further increases in the distances travelled by higher income customers; the increases in the distances travelled by higher income customers in response to alterations of outlet price and non-price offers may be greater than the increases in the distances travelled by lower income customers in response to similar price and non-price offer alterations. In general, therefore, increases in the income of customer households will lead to marked increases in outlet scale, through increases in individual household expenditures on the product of an outlet with given price and non-price offers, through increases in the size of the market area for an outlet with given price and non-price offers, and through further increases in both household demand and market area size following alterations in outlet price and non-price offers.

Extended Network of Primary and Secondary Linkages: Outlet Scale, Outlet Competitive Characteristics and Outlet Location

Customer characteristics will therefore be linked with outlet scale via their associations with individual household demand, outlet market area size, and the means of competition. But through their linkages with outlet scale, they will be connected into the network of relations of outlet scale, outlet location and outlet competitive characteristics which was summarized in Figure IV.7. An outline of the resultant extended, more complex pattern of relations is shown in Figure IV.8.

If the relations in Figure IV.8 hold, it will be expected that the data for a cross-section of groceries outlets in Hobart in 1964 will display the following spatial associations. A change in outlet location from lower order (N2 to N4; J3, J4) to higher order (N1, J1, J2) business areas will be associated with:

(i) an increase in the average income per person per customer household;

(ii) a decline in the average number of persons per customer household;

(iii) a decline in the average number of juvenile dependents per customer household;

(iv) a decline in the average number of persons per auto per customer household;

(v) an increase in outlet market area size (shown by a decrease in the proportion of an outlet's customers coming from within one mile);

(vi) an increase in outlet scale (average weekly takings);

(vii) a change to more aggressive oligopolistic markets (an increase in the proportion of outlets with less than five competitors);

(viii) possibly lower outlet price level, increased outlet range of goods, greater advertising expenditures, possibly less service; but possibly higher outlet price levels and more service in business areas in medium to high, or high income suburbs.

In addition, a change in outlet location from inner suburban to outer suburban markets should display similar associations, except that average number of persons per customer household and average number of dependents per customer household will be expected to increase rather than decrease as per capita household income increases towards the urban periphery; and customer household mobility will be expected to show little difference. Notwithstanding this, a very high income peripheral suburban area may possess small, older age households, with a very high mobility.

Table 4.9 shows that these associations did appear to hold for Hobart's groceries outlets in 1964.[97] The appearance of the relations shown in Figure IV.8 in the case of Hobart's groceries outlets gives further support to both the first and second hypotheses of this work, namely: "that the locations of the establishments of a retail trade become significantly interrelated in predictable ways with many other of their own characteristics" and "that the locations of the establishments of a retail trade become significantly interrelated in predictable ways with each other's location and other characteristics in the process of competition for revenue." The appearance of the relations shown in Figure IV.8 also adds substance to the explanation of the locational structure of Hobart's groceries retailing which was given by the analysis of the overall scale-competition-location relations.

FIG. IV.8

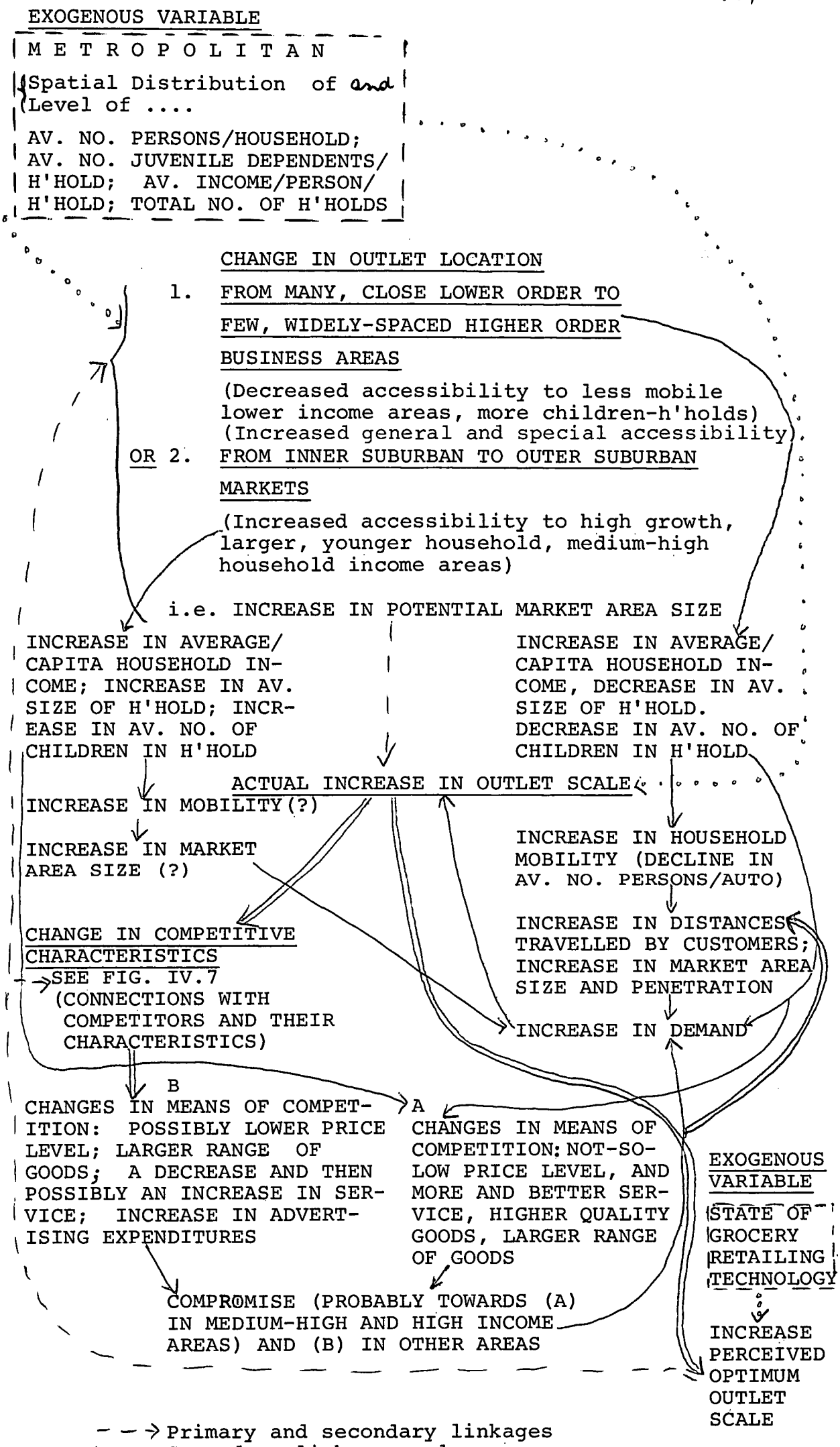


FIG. IV.8 FURTHER SELECTED PRIMARY AND SECONDARY LINKAGES OF OUTLET LOCATION, OUTLET SCALE AND OUTLET COMPETITIVE CHARACTERISTICS

(Cont.)

FIG. IV8 (Cont.)

The changes which are described are envisaged as occurring firstly, temporally and secondly, spatially. For, given the assumptions underlying this work, a pattern of temporal relations will be reflected in an analagous pattern of spatial relations and a pattern of spatial relations will be a reflection of an analagous pattern of temporal relations. The assumptions and the nature of spatial and temporal relations are elaborated in Chapter Three. The changes which are described are also general changes which will occur on the average for the whole group of retail outlets comprising a retail trade, not necessarily the changes which will occur for any particular outlet.

TABLE 4.9

TABLE 4.9

ASSOCIATION OF OUTLET SCALE, OUTLET LOCATION AND OUTLET COMPETITIVE CHARACTERISTICS WITH OUTLET OPERATIONAL, CUSTOMER AND CUSTOMER TRIP CHARACTERISTICS

Location	Mn. Av. Wkly Takings ($A)	Pn. Outlets with < 5 Competitors	Household Income ($A) a	Household Car Ownership a	Household Size a	Household Age Structure a	Mn. Pn. of Customers from < 1 mile	Mean Relative Price Index	Mean Price (c) Tinned Baby food	Mean Price (c) Tinned IXL Jam (Plum)	Mean Overall Range of Goods Index	Mean Total Groceries Products Omitted	Mean Range of Goods: Baby food	Mean Range of Goods: Jam	Pn. Outlets with Delivery	Pn. Outlets with Credit	Mean Wkly Advert. Expend. ($A)
LOCN.	SCALE	COMP. CUSTOMER CHARACTERISTICS					CUS. TRIP	PRICES			RANGE OF GOODS & PRODUCTS				SERVICES		AD.
BUSINESS AREA CLASS																	
N1	2733	.68	845	4.14	3.88	1.38	.39	.967	9.2	28.1	331	27	75	30	.68	.63	29
N2	1200	.47	995	3.30	3.78	1.22	.60	.978	9.2	27.8	253	25	52	25	.86	1.00	4
N3	880	.68	843	4.91	3.98	1.56	.67	.981	10.0	29.3	177	31	31	17	.89	.87	5
N4	679	.59	898	3.40	3.72	1.24	.74	.990	10.2	28.6	165	27	34	17	.86	.92	1
J1	1763	,16	852	3,05	3.69	.95	.41	.967	9.3	26.8	220	35	41	39	.88	.83	28
J2	12100	.50	1125	2.74	3.08	.78	.33	.944	7.0	28.3	697	7	159	86	.50	.50	130
J3	842	1.00	773	3.43	3.86	1.19	.70	.974	9.5	27.1	259	29	38	33	.75	1.00	2
J4	639	.50	778	3.72	3.93	.87	.85	.991	9.6	29.1	130	37	16	15	.50	1.00	0
REGIONAL MARKET																	
C. CITY	1084	.40	2408	.97	3.65	.20	x	.985	9.7	28.0	186	33	34	26	.80	.88	10
N. HOBART	774	.32	2720	1.11	3.55	.23	x	.979	10.3	29.2	186	28	28	20	.79	1.00	2
MNAH	1182	.67	2600	1.03	4.02	.23	x	.977	9.2	28.5	190	31	31	21	.64	.73	9
G'ORCHY	1337	.87	2834	1.04	4.37	.26	x	.990	9.5	28.2	209	20	42	30	.90	.94	10
S. BAY	2192	.93	3536	1.40	3.39	.21	x	.981	10.9	28.1	269	32	37	30	.93	.75	18
B'RIVE	1223	.93	2808	.81	4.21	.25	x	.982	9.1	27.7	256	26	55	30	1.08	1.00	6

x - not estimated

a For Business Area Classes (for h'holds using groceries outlets)
- Mean Av. Annual Income/Person/Household
- Mean Persons/Auto/Household
- Mean Persons/Household
- Mean Juvenile Dependents (< 17 yrs)/Household

For Regional Markets (for all households in market)
- Median Annual Aggregate H'hold Income)
- Mean Autos/Dwelling Unit)
- Mean Persons/Dwelling Unit)
- Students/Population)

From Hobart Area Transportation Study Data

Sources: Statistical Appendix 4 - Tables 4.1, 4.12, 4.24, 4.25, 4.42, 4.49, 4.50, 4.51, 4.62;
Statistical Appendix 5 - Tables 5.9.(i); Statistical Appendix 6 - Tables 6.1 to 6.3, 6.5.

CONCLUSIONS

The analysis of the relations of outlet location, outlet scale and outlet competitive characteristics has helped to account for the locational structure of groceries retailing in Hobart in 1964, and has given support to the two hypotheses of this work. The support given to the hypotheses and the particular relations discovered in the Hobart case, lead finally to certain conclusions concerning the wider theoretical and empirical implications of the analysis.

Implications for Future Theoretical Studies of Retail Location

The appearance of the hypothesized strong, predictable interrelations of outlet location with outlet scale and outlet competitive characteristics suggests that inadequacies may exist in current theories which attempt to account for retail location. There is no theory which currently incorporates the relations which have been discovered in the case of Hobart's groceries outlets. The relations seem to demonstrate a need for a theory which embraces and improves upon current location theory, price theory, demand theory and marketing theory, and which is applicable at the metropolitan scale of analysis.[98]

Some deficiencies of the principal body of retail location theory, central place theory, seem to be particularly clearly revealed. For the hypothesized and observed relations which have been discussed in this chapter comprise many important, predictable cause-and-effect relations between location and other variables which are not explicitly predicted by any version of the theory. For example, no version of the theory predicts any of the important primary and secondary linkages of outlet scale, operating characteristics, competitive characteristics and outlet location which are shown in Figures IV.6 to IV.8. Certain of the assumptions and the predictions of all versions of central place theory in particular do not appear to coincide with the hypothesized and observed relations which have been described. These assumptions or predictions are:

(i) that retail location patterns are generated without competition for revenue between stores of different types of business (for example between small-scale general stores, medium-scale groceries, and large-scale supermarkets); they are generated only by competition between stores of the same business type;

(ii) that identical monopolistic market structures pertain without imperfection for the retailing of every type of good, and for all stores in all locations which retail the same type of good: that is, different types of local market structure linked with the heirarchy of shopping centres do not emerge in the retailing of any type of good;

(iii) that market areas of competing size are not wholly contained one within the other; for example, that the regional market area of the larger-scale stores supplying groceries in the highest order business area cannot contain the market areas of outlets supplying groceries which are located in lower order business areas;

(iv) that customers within the market area of an outlet do not patronize outlets in successively higher orders of business area for the same goods; that is, that customers generally go to the nearest business area supplying the goods;[99]

(v) that any "types of business" which supply the same sort of retail good (supermarkets, groceries and general stores), are defined by observations of their characteristic outlet scale and other features, and thus possess characteristic "thresholds" and "ranges"; that types of business and their characteristics may be assumed to be given constants for the purposes of accounting for retail location; that types of business do not emerge as a result of the systematic adjustments between outlet location, scale, operational, competitive, customer and customer trip characteristics;[100] that types of business do not require explanation as a by-product of a less restrictive theory of retail location.[101]

Difficulties therefore appear to be in the way of further attempts to use central place theory to give an adequate prediction of retail location. Difficulties also appear to lie in the way of attempts to use current micro-economic theory to account for retail location, for in this body of theory the relations of outlet location with outlet operational, scale and competitive characteristics are not made explicit, and one or other uniform types of market structure (for example, oligopoly, monopoly) is assumed to prevail, rather than the diversity of market structures found within the Hobart metropolitan groceries market. In addition, the presence of adaptive and adoptive behaviour among entrepreneurs in the Hobart groceries market suggests that game theory models might provide a more appropriate framework for the analysis of location in the context of market behaviour than the traditional optimising forms of price theory which treat location problems.[102]

Lastly, the hypothesized predictable relations and the observed pattern of relations in Hobart seem to reveal the need for a dynamic theory of retail location. For both imply a systematic sequence of spatial and temporal changes in outlet location and other endogenous variables which can be predicted only by a dynamic spatial model (Figures IV.1, IV.2, IV.4 to IV.8). In addition, the hypothesized and observed pattern of relations are dependent upon the current states of certain exogenous variables namely, the current state of retail technology (Figures IV.6, IV.7), and the current nature of the urban

population (Figure IV.8). Ideally, a long run dynamic spatial model would seem to be necessary to predict the different pattern of relations which might occur for different middle-run time periods with changes in these exogenous variables.

Implications for Future Empirical Studies of Retail Location

The hypothesized pattern of relations plus the corresponding pattern observed in Hobart in 1964 have wider empirical as well as wider theoretical implications. They can be used with great caution to discuss the locational structure of retailing in western cities in general and especially the locational structure of retailing in Australian cities.[103]

The hypothesized and observed pattern of relations have implications for the widely discussed question of the survival of the small-scale groceries outlet in metropolitan areas.[104] Changes in scale of outlet in Hobart with shifts from lower to higher order business area, and from inner to outer suburban markets, are accomplished by variations in the proportions of outlets in low, middle and upper size ranges, and not by the elimination of small-scale outlets.[105] This suggests that there may be room for the small-scale unit, even adjacent to the larger scale unit in the highest order business areas (for example, in the C.R.A.), and even in conjunction with the larger scale outlets in the richest outer suburban markets. The evidence in Hobart also suggests that, although imperfections in the local markets in which they operate could partly be responsible for the survival of small outlets in lower order business areas and in inner city markets, the high cost and limited supply of space for large-scale retail units in some locations (for example upper order business areas), and the ability of small scale outlets in others to compete strongly with large-scale outlets by matching lower prices with better services for which customers seem willing to pay, indicate possibly more acceptable reasons for their survival. For policy-makers these conditions imply that appropriate action on the question of "too many, too small stores" within a city or in different parts of it cannot be determined without reference to possible spatial variations and the costs of space or in consumer demand which might make large scale-units undesirable.

Finally, some conclusions can be drawn from the relations summarized in Figures IV.6, IV.7 and IV.8 about the causes and effects of two important trends in retailing in western cities. The first of these trends is the decline of the small isolated convenience goods store and the small convenience goods shopping centre and the rise of the planned regional centre with large scale convenience goods outlets as their key units;[106] this trend represents a change in outlet location within metropolitan areas from lower order to higher order

business areas. The second trend is the suburbanization of retailing, that is, the change in the locations of the outlets of many retail trades from inner suburban to outer suburban markets.[107] Figures IV.6, IV.7 and IV.8 show how, for a retail convenience goods trade, both these trends might be related to the present state of two exogenous variables: current state of the technology of retailing which leads to the widespread use of self-service techniques, and the current socio-economic characteristics and spatial distribution of the urban population. Figures IV.6, IV.7 and IV.8 also trace the changes in outlet scale, outlet cost, outlet non and non-price offers, outlet competitive characteristics, outlet customer characteristics and outlet customer trip characteristics which could be both the causes and the effects of the current trends in the location of convenience goods trades. Unfortunately, these possible causes and effects cannot be described in detail here.

1 e.g. Hall, Knapp and Winsten (1961, 40-45).

..."Output comprises all the goods and services resulting from the economic activity of an individual, a firm, an industry or a country.---Output is normally understood to be gross output; but in the course of production the firm or country will have used goods and services produced by other firms and countries. The most useful definition of output therefore relates to gross output less the goods and services used in production; this amount is called net output". (Seldon and Pennance, 1965, 315).

2 e.g. Nelson (1958, 215-233, especially 229-230).

3 Takings per unit time period and number of workers are commonly employed as measures of the output (size) of a retail establishment by Government Census authorities (e.g. Australia, Commonwealth Bureau of Census and Statistics, Census of Retail Establishments). They have also been suggested for use in academic work by, inter alia, Hall, Knapp and Winsten (1961), Holdren (1960), Douglas (1962), McCarty and Lindberg (1966). Number of manhours worked per unit time period as a measure of output has been suggested by, inter alia, Hall, Knapp and Winsten (1961) and Holdren (1960). The measures used for quantity of space occupied have been widely used by land valuers (e.g. Brown, 1965, 81-83) and retail marketing experts (e.g. Nelson, 1958).

4 The precise ways in which any single measure fails to accord with the concept of output or space occupied has been discussed in the literature cited in Footnote 3.

5 Hypothesis one of this work states that "the locations of the establishment of a retail trade become significantly interrelated in predictable ways with many of their own characteristics (including their scale)".

6 This conclusion is reached despite the fact that average weekly takings per outlet and number of full-time workers per outlet do not show a statistically significant relation at the 5% level with regional market location, although annual takings, total number of workers and number of part-time workers do. (Table 4.1). No reason could be found for the discrepancy in the level of statistical significance for average weekly takings and annual takings (annual weekly takings x 52). The discrepancy makes only tentative the conclusion that there is a strong, predictable relation between outlet location classified by regional market and output (measured by takings per unit time period). The conclusion concerning the presence or absence of a relationship between regional market location and groceries outlet output is more firmly based on the evidence of the remaining variates, number of full-time workers, number of part-time workers, and total number of workers. The strong relations of the last two variates and the absence of a relation of the first with regional market location reveal a distinctive association of outlet output and outlet location classified by regional market. Marked variations in establishment output between regional markets are reflected in parallel variations in demands for labour which are met by varying the number of part-time workers much more than the number of full-time workers employed.

7 p.224.

8 The reason for this probably lies in the differential costs of space in the different locations. Space is most expensive in the C.R.A., and entrepreneurs there will attempt to use less of

it in relation to their output than entrepreneurs in other locations. On the other hand, space is least expensive in the locations occupied by isolated stores, and entrepreneurs there may use more of it in relation to their output than entrepreneurs in other areas. Finally, while space is relatively dear in the regional shopping centre location J2, it may be cheap enough for the entrepreneurs of the outlets there, with the highest output of any in Hobart, to be able to utilise a larger amount of it in relation to their output to provide good in-store access, good display space, and uncongested storage and goods handling areas. Entrepreneurs in the regional centre J2 may need to do this to attract and retain the patronage of their predominantly upper income customers, who are sensitive to the type and quality of in-store service provided.

9 The cost of space factor could restrict groceries outlets to well-defined frontages in each class of business area. That there do seem to be distinct limits to the street frontages obtained by outlets in each business area class is further shown by the very much lower degree of variation of outlet frontages about their business area mean in comparison with the degree of variation for output measures (Statistical Appendix 4 - Tables 4.1 to 4.9).

10 The measures of space occupied for general stores separately provided further evidence of the same overall relations of floor-space and frontage with location (Table 4.1). These relations therefore appear to be particularly strong ones.

11 The strength of this relation is further shown by the fact that it recurs for the general stores alone in each market, as well as for all outlets together (Table 4.1).

12 pp. 224-225.

13 pp. 33-36.

14 Hereinafter called perceived optimum outlet scale. The optimum scale is either the money profits-maximising one, or the one which will provide some satisfactory level of money income.

15 Chamberlin (1962 edn., 260-265).

16 Applebaum (1960, 1961, 1965).

17 It will be remembered from Chapter 3 that the changes that are to be described are envisaged as occurring firstly, spatially and secondly, temporally (pp.198-9). A pattern of association between location and other variables has been revealed by the data for a 1964 cross-section of Hobart's groceries outlets. This may be interpreted as a pattern of spatial cause and effect; it may also be interpreted as an analagous pattern of temporal cause and effect - that is, as a pattern of relations between the variables which is stable over a current middle-run period - by making the normal assumptions which lie behind cross-sectional analysis (pp.198-9). Consequently, the sequence of change described here may first be envisaged as a sequence of spatial change and secondly as a sequence of temporal change.

The changes refer to the general changes which will occur on the average for the group of retail outlets comprising the groceries trade in Hobart, not necessarily to the changes which will occur for any particular outlet (c.f. Chapter 1, pp.32). The description of the changes is therefore a generalisation about conditions in the Hobart groceries trade as a whole, made on the basis of observations for the trade as a whole.

The fact that the description is a generalisation affects the meaning of the words "change in location." Temporal changes in groceries outlet location for the trade as a whole are regarded as changes in the proportion of outlets in the different classes of location, namely, in the different classes and types of business area, and in the different regional markets. These temporal changes in proportions will normally occur if some existing outlets go out of business, and/or some new entrants appear, and/or if some existing outlets change their location to a new locational class. A temporal change in groceries outlet location between locational classes, for example from lower order to higher order business areas, does not mean that each particular groceries outlet currently in lower order business areas migrates to higher order ones, only that an increase occurs in the proportion of outlets in the upper order locations. On the other hand, spatial changes in location for the trade as a whole refer to the changes from all those outlets in the trade which are currently in a particular locational class to those outlets of each other locational class; for example, a change from the outlets in lower order business areas to the outlets of higher order business areas in Hobart in 1964 constitutes a spatial change in groceries outlet location within the group of outlets comprising the Hobart groceries trade.

Similarly, temporal changes in other variables mean the changes in the variables 'on the average' over time for the trade. They will not be effected by each and every outlet making the same adjustment simultaneously in a variable. They may be effected by only some outlets making the sorts of adjustment necessary to produce a change 'on the average' for the trade. Also, spatial changes in other variables mean the general sort of change in the variables between the outlets of different specified locational classes in Hobart in 1964. Spatial increases in scale, for example, are the general increases in outlet scale between lower and higher order business areas and between inner and outer suburban markets.

In cross-sectional analysis, a pattern of spatial change in the variables is assumed to reflect a pattern of temporal change in the same variables which is stable over the current middle-run period. For example, spatial increase in outlet scale between lower and higher order business areas is assumed to reflect a pattern of temporal increase in scale and profits between business area classes which is constant over the middle run. As a result, spatial cause and effect relations - that is, cause and effect relations which hold over space at a given time - are identified as well as the more usual temporal cause and effect relations. For example, in 1964, spatial changes in outlet scale and profit are said to be the cause of given numbers of groceries outlets being in higher order business area classes instead of among the outlets of lower order business area classes. That is, spatial changes in scale in Hobart in 1964 are said to be the cause of the spatial difference in outlet location between lower order and higher order business area classes in 1964.

18 Simmons (1964, 57-101, especially 96-101); Berry (1963, 161-177).

19 c.f. Chapter 3, p.200, on the nature of gross, primary and secondary relations.

20 The locational equivalence of groceries outlets of similar status N and J centres was not altogether unexpected, despite the fact that N and J centres were originally considered to comprise two different locational classes for the classification of the locations of Hobart's groceries outlets. Firstly, it was likely that the gross two-category N or J business area type classification would

fail to describe accurately the details of any different attributes of a N or J centre location for the outlets of a particular business type. Secondly, by definition, N and J centres were not radically different types of business area. They were arbitrarily differentiated according to the proportions of their competing and complementary retail facilities which had 'arterial' and 'necleated business functions.' No sharp break appeared between nucleated centres and joint centres ranked in order of the proportions of their functions which were 'nucleated' and 'arterial.' This indicates considerable overlap between possible N and J centre classifications, that is, it indicates similarities in facilities between many centres of both types. In particular, despite the fact that J centres were not formed by any simple combinations of 'nucleated' and 'arterial' function business types, there was a considerable degree of overlap in the precise types of retail facility which appeared in association with groceries outlets in N and J centres of similar status.

Similarities between the locations of groceries outlets in the 'nucleated function' sections of N and J business areas of equivalent status might therefore have been expected. They might have also been expected on the basis of Berry's work in Spokane where three sets of nucleated, joint and arterial centres were also recognised, and where 'nucleated conformations' containing groceries outlets were shown to be present and similar in joint and nucleated centres of the same status (1959-A, 67-99).

21 p. 224.

22 Chapter 3; the features mentioned are the major ones noted on pp. 160-163.

23 This is a debatable assumption, but is unavoidable in the absence of information about the profits of groceries outlets in different locations.

24 It will be remembered from Chapter 3 that the changes that are to be described are envisaged as occurring firstly, spatially and secondly, temporally (pp.198-9). A pattern of association between location and other variables has been revealed by the data for 1964 cross-section of Hobart's groceries outlets. This may be interpreted as a pattern of spatial cause and effect; it may also be interpreted as an analagous pattern of temporal cause and effect, - that is, as a pattern of relations between the variables which is stable over a current middle-run period, - by making the normal assumptions which lie behind cross-sectional analysis (pp.199). Consequently, the sequence of change described here may first be envisaged as a sequence of spatial change and secondly as a sequence of temporal change.

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The fact that the description is a generalisation affects the meaning of the words "change in location." Temporal changes in groceries outlet location for the trade as a whole are regarded as changes in the proportion of outlets in the different classes of location, namely, in the different classes and types of business area, and in the different regional markets. These temporal

changes in proportions will normally occur if some existing outlets go out of business, and/or some new entrants appear, and/or if some existing outlets change their location to a new locational class. A temporal change in groceries outlet location between locational classes, for example from lower order to higher order business areas, does not mean that each particular groceries outlet currently in lower order business areas migrates to higher order ones, only that an increase occurs in the proportion of outlets in the upper order locations. On the other hand, spatial changes in location for the trade as a whole refer to the changes from all those outlets in the trade which are currently in a particular locational class to those outlets of each other locational class; for example, a change from the outlets in lower order business areas to the outlets of higher order business areas in Hobart in 1964 constitutes a spatial change in groceries outlet location within the group of outlets comprising the Hobart groceries trade.

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In the cross-sectional analysis, a pattern of spatial change in the variables is assumed to reflect a pattern of temporal change in the same variables which is stable over the current middle-run period. For example, spatial increase in outlet scale between lower and higher order business areas is assumed to reflect a pattern of temporal increase in scale and profits between business area classes which is constant over the middle run. As a result, spatial cause and effect relations - that is, cause and effect relations which hold over space at a given time - are identified as well as the more usual temporal cause and effect relations. For example, in 1964, spatial changes in outlet scale and profits are said to be the cause of given numbers of groceries outlets being in higher order business area classes instead of among the outlets of lower order business area classes. That is, spatial changes in scale in Hobart in 1964 are said to be the cause of the spatial differences in outlet location between lower order and higher order business area classes in 1964.

25 Berry (1963, 161-177); Zimmer (1964, 149-192); Schell (1964).

26 These features are the outstanding ones of those noted on pp. 160-163.

27 This is a debatable assumption, but is unavoidable in the absence of information about the profits of groceries outlets in different locations.

28 Noted by Mueller and Garoian (1961, 133).

29 For an outline of the ways in which the competitive characteristics of Hobart's groceries outlets are to be used to test this hypothesis, see pp. 197-198.

30 The information also helps to validate one of the assumptions which was used for the development of one of the principal measures of store location, namely, the regional market location classification.

The usefulness of this classification rests in part on the legitimacy of the assumption that the market areas of regional shopping centres form major submarkets within the city for the sale of retail goods (pp. 110 ff.). The validation of this assumption in the case of the sale of groceries gives more substance to the results of the tests of hypothesized relations using data for the locations of Hobart's groceries outlets classified by regional market.

31 Competitors in the market for a particular type of product are said to be (purely and perfectly) competitive, when there are many producers so that none is able to influence the price of goods sold and newcomers are free to produce on the same terms as existing producers; monopolistically competitive when there are many sellers of products of the same type that, although close substitutes for each other, are not perfect substitutes because of product differentiation supported by branding, advertising, etc., imperfectly competitive when individual producers can influence prices to an extent depending upon numbers of producers in relation to total demand, the degree to which products are differentiated in quality, design, style and location, and the degree of freedom of newcomers to produce close substitutes; imperfectly competitive also where there is uncertainty and imperfect knowledge about prices and profits elsewhere, and an ability or desire to restrain competition especially in price, for example, through the desire not to maximise profits but to attain some "satisfactory" profits level; oligopolistically competitive when competitors compete in small groups whose members' activities are determined by the expected reactions of one another, that is in small groups with mutual interdependence between member firms. (Seldon and Pennance, 1965; Machlup, 1952).

32 In the Hobart metropolitan groceries market in 1964, competition was for an estimated $247,502 spent per week on all the products of groceries outlets, and for an estimated $152,090 spent per week on groceries alone (calculated from information supplied by entrepreneurs in the first-phase sample of Hobart's groceries outlets).

33 e.g. Chamberlin (1962 edn., 100-124, especially 103).

34 The appearance of this structure seems to validate the assumptions used in this work for drawing up the regional market classification for retail outlet locations, namely, that each retail store functions in a distinctive market area dominated by its nearest major regional shopping centre, and that Hobart groceries buyers share their patronage between stores at lower levels and stores in the highest levels of the shopping centre hierarchy (pp. 110 ff.).

35 e.g. Machlup (1952). There are a few exceptions however. Chamberlin (1962 edn., 100-104), for example, notes the possible existence of small-group chained oligopolistic retail markets in the sale of a particular product within a city. However, he fails to consider the possible differences between individual small markets, and the sort of spatial ordering of such markets which he envisages (each shop linked with the 4-5 closest ones), does not coincide with that discovered in the case of the Hobart groceries trade.

36 In 1964, the outlets of the N_1, J_1, and J_2 upper order business area classes shared an estimated $108,360 expenditures on all the products they supplied per week, or 43.78% of the whole metropolitan area expenditures at groceries outlets. They also shared an estimated $76,504 expenditures per week on groceries alone, or 50.30% of the whole metropolitan area expenditures in groceries.

37 In 1964, there were only 9 supermarkets, but they shared an estimated $81,022 or 37.74% of total expenditures at groceries outlets in Hobart, and $59,824 or 39.34% of expenditures on groceries alone.

38 One entrepreneur was even running an operations research program to try to determine the profit-maximising prices, range, shelf-location and display format for each product in his store.

39 Over the eighteen months of field work in Hobart, alternating price, service, and promotions and advertising "wars" were waged by competing supermarkets. They were the outward evidence of the highly aggressive attitudes of their entrepreneurs towards competitors.

40 It seemed clear that the distinctive competitive characteristics of the supermarkets were a reflection of the very great entrepreneurial abilities of their managers. Four of the nine managers had greater than thirty years' experience of trading in the same location in the market as an old-established independent family concern, with a local reputation as a leader in experiment and innovation in groceries retailing. Five of the nine managers had been trained extensively under the personnel training programme of a progressive national or local food store chain.

41 These changes seem to be associated with (i) a decline in entrepreneurial ability as the proportion rises of newly-arrived, often foreign-language speaking immigrant entrepreneurs (Statistical Appendix 5 - Table 5.17); (ii) an increase in the proportion of outlets newly opened or operated by under-capitalised partners or families rather than by long-established public or private companies (Statistical Appendix 5 - Tables 5.13, 5.16); and (iii) an increase in the prevalence of attitudes that unrestrained price competition is unethical, and that competition should be restricted by the retailers themselves, or by the Government, to give everyone a "fair share of the market."

42 The 168 general stores in Hobart in 1964 had the highest % of the three business types (37.46) of total weekly metropolitan expenditures at groceries outlets, although they had the lowest % (26.42) of weekly metropolitan expenditures on groceries alone. The 47 groceries obtained 29.80% ($73,752) of the total metropolitan groceries outlet expenditures, and 34.24% ($52,072) of the total metropolitan expenditures for groceries alone.

43 These characteristics seem to be associated with a greater proportion of under-capitalised, inexperienced, single-person or family or immigrant entrepreneurs (Statistical Appendix 5 - Tables 5.13, 5.16, 5.17), and by an overwhelming predominance of "quiet life," "fair price" and "can't compete anyway" attitudes among general store entrepreneurs.

44 They can therefore be classified only with difficulty according to any of the usual market structure criteria, which demand a tolerable degree of homogeneity in the behaviour of component firms (Footnote 31).

45 Alchian (1950). Alchian suggests that the operation of a firm is <u>adoptive</u> if it can be said that luck or relative superiority decides the successful firms, and that firms proceed by copying successful enterprises or by a series of trials and errors. In this case, the selection of survivors by the economic environment determines the mode of operations which is successful (makes positive profits), and not the careful pursuit of maximum profits (adaptive behaviour) by the entrepreneur. The fact that Hobart

groceries outlet entrepreneurs were adoptive in behaviour emerged most clearly from conversation with them during interviews, and also from conversation with their Traders' Association Secretary, (Mr. A. R. Pash).

46 Where significant associations do occur, they are usually the result of the somewhat anomalous behaviour of the 15 entrepreneurs only of the outlets of the C.R.A. (J_1) and Sandy Bay centres (J_2) (Table 4.5.(ii)). For example, there is a particularly high degree of responsiveness to and fear of competitors' retaliation in J_1 and J_2 centres; there is a particularly large number and proportion of C.R.A. outlet's competitors who are also located in the C.R.A., and a particularly high proportion of C.R.A. entrepreneurs want the trading hours of all outlets confined to normal Monday-Friday working hours to protect their profits. The distinctive features of outlets of J_1 and J_2 centres with respect to these competitive characteristics produces an association between these competitive characteristics and outlet location classified by type of business area (Table 4.4).

47 This analysis supports location indicated by regional market as an important supplementary measure to location indicated by class and type of business area, as postulated in Chapter seven.

48 In 1964, the 65 groceries outlets in the Central City market shared $73,712 or 29.78% of total metropolitan area expenditures at groceries outlets per week, and $46,364 or 30.49% of total metropolitan area expenditures on groceries alone.

49 This entrepreneurial behaviour may be associated with the existence of a higher proportion of conservative older businesses (pre - 1950) here than elsewhere, and also a relatively high proportion of inexperienced new entrants replacing more experienced entrepreneurs (Statistical Appendix 5 - Table 5.16). In addition, a very high proportion of the businesses in this market (over one-third) are run by Greek or other Southern European immigrants, with little knowledge of local trading conditions (Statistical Appendix 5 - Table 5.17).

50 In 1964, the 53 outlets of the North Hobart market shared $41,508 or 16.77% of total Hobart metropolitan area expenditures at groceries outlets per week, and $21,134 or 13.90% of total weekly metropolitan expenditures on groceries alone.

51 A lower proportion of entrepreneurs in the North Hobart market are immigrants than in the Central City market, and fewer have been in business more than ten years (Statistical Appendix 5 - Tables 5.16, 5.17).

52 In 1964, the 31 outlets of the Moonah market shared an estimated $36,162 or 14.61% of total metropolitan expenditures at groceries outlets per week, and $21,694 or 14.26% of total weekly metropolitan expenditures on groceries alone.

53 These conditions may also be associated with the fact that virtually all Moonah entrepreneurs commenced in business after 1955, and most after 1960, and are more likely to be handicapped by lack of experience than by conservative attitudes towards active competition (Statistical Appendix 5 - Table 5.16); also, a lower proportion are foreign-born and lack Australian trading experience than in the inner city markets (Statistical Appendix 5 - Table 5.17).

54 In 1964, the 32 outlets of the Glenorchy market shared $42,984 or 17.37% of total weekly metropolitan area expenditures at groceries outlets, and $26,010 or 17.10% of total weekly expenditures in groceries alone.

55 The lack of competitiveness on the part of the entrepreneurs in the Glenorchy market may also be due to the high proportion of inexperienced, new or immigrant entrepreneurs (Statistical Appendix 5 - Tables 5.16, 5.17). However, these proportions do not seem to be substantially higher than in the highly competitive Moonah market, so that distance from major competitors probably remains the major restraining influence on competition.

56 In 1964, the 16 outlets of the southern suburban market of Sandy Bay shared $35,072 or 14.17% of total Hobart metropolitan area expenditures at groceries outlets per week, and $25,218 or 16.58% of total weekly metropolitan area expenditures on groceries alone.

57 This does not emerge as clearly from Table 4.5.(ii) as it did in conversation with Hobart groceries outlet entrepreneurs.

58 In 1964, the outlets of this market shared $18,064 or 7.30% of the total Hobart expenditures at groceries outlets per week, and $11,860 or 7.67% of weekly metropolitan expenditures on groceries alone.

59 Limits on the degree of competitiveness of the entrepreneurs in the Bellerive market are probably also set by the conservativeness of the entrepreneurs. Entrepreneurs are overwhelmingly Australians, thirty five percent of whom have been operating their business in the same location for more than 15 years, and 95% of whom have been doing so for more than five years (Statistical Appendix 5 - Tables 5.16, 5.17).

60 The second hypothesis states "that the locations and other characteristics of the establishments of a retail trade become significantly interrelated in predictable ways with each other's locations and other characteristics in the process of competition for revenue."

61 pp. 37-41.

62 It will be remembered from Chapter 3 that the changes that are to be described are envisaged as occurring firstly, spatially and secondly, temporally (pp.198-9). A pattern of association between location and other variables has been revealed by the data for 1964 cross-section of Hobart's groceries outlets. This may be interpreted as a pattern of spatial cause and effect; it may also be interpreted as an analagous pattern of temporal cause and effect - that is, as a pattern of relations between the variables which is stable over a current middle-run period - by making the normal assumptions which lie behind cross-sectional analysis (pp. 198-9). Consequently, the sequence of change described here may first be envisaged as a sequence of spatial change and secondly as a sequence of temporal change.

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63 c.f. pp. 237-242.

64 Simmons (1964, 98-99).

65 Simmons (1964, 67-101 especially 98-99).

66 p.242.

67 p.227.

68 pp. 160-163.

69 The following is a generalisation about the differences in the competitive characteristics of the outlets in different regional markets. These differences were noted on pp. 244-246.

70 It will be remembered from Chapter 3 that the changes that are to be described are envisaged as occurring firstly, spatially and secondly, temporally (pp. 198-9). A pattern of association between location and other variables has been revealed by the data for a 1964 cross-section of Hobart's groceries outlets. This may be interpreted as a pattern of spatial cause and effect; it may also be interpreted as an analagous pattern of temporal cause and effect - that is, as a pattern of relations between the variables which is stable over a current middle-run period - by making the normal assumptions which lie behind cross-sectional analysis (pp. 198-9). Consequently, the sequence of change described here may first be envisaged as a sequence of spatial change and secondly as a sequence of temporal change.

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71 pp. 244-246.

72 Simmons (1964, 62-63); Duncan and Phillips (1963 edn., 107-117).

73 Berry (1963); Schell (1964, especially 45-47).

74 Simmons (1964, 90-91).

75 pp. 160-163.

76 For the definitions of the primary and secondary linkages between variables and the ways in which they may effect overall interrelations, see p. 200.

77 p. 199.

78 p. 199.

79 e.g. Chamberlin (1962 edn.,) Holdren (1960).

80 e.g. Cohen (n.d.); Charvat (1961); Zimmerman (1965).

81 Charvat (1961, 11-29, especially 15).

82 Charvat (1961, 55-57, 68-74).

83 Price discrimination here refers to the practice of pricing to take into account the different elasticities of demand for the goods and products sold in different groceries outlets which supply different groups of consumers. It has been discussed in detail by Holton (1957).

84 Charvat (1961, 93).

85 e.g. Holdren (1960, 117-124). Distance is most often conceived as straight-line distance across the ground. The argument still holds if it is measured by customer perceived travel costs, or by other distance measures (e.g. time-distance).

86 The relations are clearer for location by class of business area than for location classified by regional market. Firstly, the presence of the outlets of the highest order business area of all, the C.R.A., and of portions of the outlying eastern suburbs in the Central City market causes the means for operating characteristics for all outlets in the Central City market to be closer to those for outer suburban markets than anticipated (e.g. mean average weekly takings, mean average weekly advertising expenditures, mean average percentage of goods sold self-service, mean range of goods). But if the influence of the C.R.A. outlets at least could have been eliminated, the values for the remaining outlets in the

Central City market would have been very low indeed. Secondly, the Moonah market, lying between the central and peripheral suburbs of the city, seems to share some of the characteristics of both inner and outer suburban markets. This indicates no clear-cut break but rather a transition zone from inner areas with outlets of small scale, little self-service, high costs high prices and low range of goods, to outlets of outer suburban areas with very different operating conditions.

87 Mueller and Garoian (1961, 133).

88 However, price competition may be limited and non-price competition alone be active when outlets become very large and when there is a high degree of horizontal and vertical integration in the groceries industry (Mueller and Garoian, 1961, 133-136).

89 Referred to in Hood and Yamey (1951, 129).

90 Charvat (1961, 53-120).

91 Holdren (1960, 117-124).

92 Refer to 1964 issues National Australian Retail Grocers Association, Retail Week.

93 loc. cit.

94 The associations are clearer for location classified by class of business area than for location classified by regional market. The presence of outlets of the highest order business area, the C.R.A., in the Central City market, gives this market some of the expected features of an outer suburban area (for example, high weekly advertising expenditures). But even allowing for this, increases in scale of outlet between inner and outer suburban markets do not appear to be very strongly associated with increasingly oligopolistic small-group market structures with major competitors increasingly confined to higher order locations.

95 c.f. Simmons (1964, 37-41, 42); Quinn (1955, 158-161); Duncan and Reiss (1950), Part II.

96 The following pieces together notions in consumer demand analysis in economics (e.g. Ryan, 1962, 1-43; Schultz, n.d., Prais and Houthakker, 1955), and in studies of customer travel behaviour (e.g. Huff, 1960).

97 However, the outlets of N_1 centres attract less mobile and younger households than expected, probably owing to the effect of three of the centres being in medium-income, youthful, outer suburban areas.

98 This finding concerning the need for a revised and more comprehensive theory of retail location is very similar to the finding of Kuklinski, that the same sort of revised and more comprehensive theory is necessary for the study of industrial location (Economic Commission for Europe Secretariat, 1967).

99 c.f. Figure IV.3.

100 c.f. pp. 122-126.

101 Current versions of central place theory have been most recently summarised in Berry (1968, 59-88). Assumptions (i) to (v) are implicit in these versions. The assumptions are perhaps more clearly revealed in the summary of a modern Berry version of the

theory in Berry (1959-A, 54-56).

102 These criticisms even apply to Chamberlin (1962 edn.), who perhaps of all economists makes most explicit the relations of outlet location with outlet operational, scale and competitive characteristics (e.g. 260-265).

103 The tested hypothesized relations were formulated to refer to just this wider universe, and the corresponding observed patterns in Hobart have been supported with the fragmentary evidence of similar patterns elsewhere. In addition, the observed patterns in Hobart have been assumed with good reason to be reasonably stable over a current middle-run period, so that they might not represent transitory disturbed conditions. Finally, the structure and trends in retailing in Hobart were shown in Chapter one to be very similar to those of other capital cities in Australia, so that a cautious extension of the observed relations to at least these areas is in order.

104 e.g. Cheer (1957).

105 pp. 224 - 226.

106 e.g. Simmons (1964, 96-97, 129-133, 147-150).

107 e.g. Duncan and Phillips (1963 edn., 107-117).

CHAPTER 5 HOBART'S GROCERIES OUTLETS : LOCATION AND COSTS

SYNOPSIS

MAIN CHAPTER HEADINGS

	Introduction
	Definitions and Measures of Costs and Efficiency.
DESCRIPTION OF THE GROSS RELATIONS OF COSTS, EFFICIENCY AND LOCATION BY CLASS AND TYPE OF BUSINESS AREA	Location by Class of Business Area, Costs and Efficiency; Implications for Location by Type of Business Area, Costs and Efficiency.
DESCRIPTION OF THE GROSS RELATIONS OF COSTS, EFFICIENCY AND LOCATION BY REGIONAL MARKET	The Lack of Overall Relations of Individual Costs and Efficiency Variates and Regional Market Location; Costs, Efficiency and Type of Business.
INTERPRETATION OF THE GROSS RELATIONS OF LOCATION AND COSTS AND EFFICIENCY	Location Classified by Class of Business Area and Outlet Costs and Efficiency.
	Location Classified by Regional Market and Outlet Costs and Efficiency.
PRIMARY AND SECONDARY RELATIONS - LOCATION, COSTS AND EFFICIENCY	Costs, Efficiency, Location and the Organisational Structure of Distribution.
CONCLUSIONS	Implications for Future Theoretical Studies of Retail Location.
	Implications for Future Empirical Studies of Retail Location.

Introduction

The attempt to account for the locational structure of groceries retailing in Hobart and for retail location in general is furthered by tests of hypothesized relations between the location and cost characteristics of retail establishments. First, an examination is made of the overall relations of the locations and cost structures of Hobart's groceries outlets; this contains a discussion of the closely allied question of the overall relations of outlet location and efficiency. Next, a more detailed investigation is made of the impact of other variables - such as outlet scale, competetive characteristics and the means of competition - on outlet cost structures and on location. Finally, conclusions are drawn concerning the wider theoretical and empirical implications of the analysis.

Definitions and measures of costs and efficiency

Outlet cost structures. The analysis of the cost structures of Hobart's groceries outlets centres on the more significant cost categories of retail firms. These are the cost of space occupied, the cost of goods sold, labour costs, the cost of advertising and sales promotion and display, and the cost of providing customer services (especially consumer finance and delivery services). Of these, the most important categories are the cost of space occupied, the cost of goods sold, and labour costs.[1] For the present problem, all the different types of cost are variable costs, including the cost of space occupied (for example rentals) which is normally considered to be a fixed cost.[2] It is assumed that, over the middle-run period considered here, the quantity of space occupied by individual outlets can and will be varied with output, by extensions to premises or by site changes or by exit from the market.[3]

Over a given time period, the cost per unit output of each type and the aggregate cost per unit output are equally as important in the decision-making of the entrepreneur as the total cost of each type and the total aggregate cost.[4] Accordingly, in order to test the hypothesized relations between outlet location and outlet cost characteristics,[5] data for Hobart's groceries outlets were used to estimate the following measures of the different types of outlet cost:

Variable Cost (Total)

(i) yearly land rates and taxes (for outlets whose entrepreneurs paid land rates and taxes);

(ii) weekly rental (for outlets which were hired premises);

(iii) amount normally outstanding on credit;

(iv) average weekly costs of goods sold for the last three months (actual payment for goods for sale inclusive of delivery charges, but exclusive of delivery, bulk purchase and cash payment discounts);

(v) average weekly costs of advertising for the last three months;

(vi) average weekly wages paid over the last three months.

Variable Cost/Unit Output

(vii) average weekly rental/average weekly takings for the last three months;

(viii) average weekly costs of goods sold/average weekly takings for the last three months;

(ix) average weekly wages/average weekly takings for the last three months;

(x) average weekly advertising expenditures/average weekly takings for the last three months.

Deficiencies of the outlet cost measures. The measures of outlet cost characteristics provided ten outlet cost variates. The measures had to be tailored to the need to collect accurate data in the field to provide information about outlet cost characteristics. It was hoped that the estimates by interviewed entrepreneurs of their weekly payments over no more than a three month recall period would provide accurate information about normal operating conditions, as very few entrepreneurs kept written accounts.[6]

The measures are deficient in various important ways as indicators of normal entrepreneurial expectations about the different types of cost. Firstly, the variates 'annual land rates and taxes' and 'weekly rental for the site occupied' do not closely approximate 'cost of space occupied,' that is, the cost of space owned or occupied for retail purposes. This is so since both variates may incorporate costs of space devoted to non-retail as well as to retail purposes, as in the by no means uncommon case of a retail outlet incorporating a residence; in addition, rentals may incorporate payments for hiring equipment, and land rates and taxes may incorporate payments for municipal services. Neither does the variate 'the amount normally outstanding on credit' closely approximate 'cost of providing consumer finance.' However, these were the only reasonably suitable variates for which data could be obtained.

There are deficiencies, too, in using takings to indicate real output in unit costs variates. Some of the deficiencies of the use of takings as an output indicator have been referred to already.[7] But, when employing takings as a measure of real output for unit cost variates, particular mention must be made of the possible discrepancies between real output and takings which may arise because of the hidden inclusion of the price variable. If takings (equals theoretically output times price) is used as an output indicator, outlets which actually have low output, low total costs, high unit costs and very high prices could appear to have lower unit costs than outlets which actually have higher

outputs, higher total costs, but lower unit costs and very low prices.

Data deficiencies meant that there were further imperfections in the measures of the cost characteristics of Hobart's groceries outlets. In particular, the figures given by entrepreneurs for average weekly wages were extremely dubious estimates of the labour costs involved in running their establishments. Many of the smaller retail outlets were single-owner-operated or run by families, and no regular wages as such were paid to the owner or to his dependents. The average weekly value of money taken from the till plus the value of goods taken from the store at current prices was used where possible as an estimate of the payments made for their labour to the entrepreneur and his family. But this bears no specific relation to the alternative opportunity cost of the labour of these workers. It was evident in the field that any payments to the entrepreneurs or to members of his family were normally kept to an absolute minimum, so it is probable that the true opportunity labour costs of single-owner or family-operated outlets were grossly under-estimated. Consequently, figures for total and unit labour cost variates for Hobart's groceries outlets are likely to be especially suspect, and particularly so in the case of the small outlets in inner suburban markets or in lower order business areas.

Two noticeable omissions from the list of the ten cost variates are measures of aggregate costs per unit output and of total aggregate costs. These were omitted because many entrepreneurs felt they could not give even tolerably accurate estimates of them; they kept track only of their most important expenditures, for example, those for rentals, wages and goods for sale. Measures of the cost of advertising and promotions and display and of providing customer services, other than average weekly advertising expenditures and average amount outstanding on credit respectively, were omitted for the same reason.[8]

Economic and physical efficiency. The question of the cost characteristics of retail outlets is intimately connected with the question of their economic efficiency, that is their output per unit cost of factors employed.[9] Low cost per unit output can in theory be taken to mean high economic efficiency or high output per unit cost. For example, low cost of goods sold per unit output implies a higher degree of economic efficiency in the assembly of goods for sale, low costs of labour per unit output implies a high degree of economic efficiency in the use of labour, and low aggregate cost per unit output implies a high degree of overall economic efficiency. Any discussion of the cost characteristics of retail outlets therefore theoretically leads naturally into a discussion of their economic efficiencies.

But in practice there are difficulties in extending a discussion of the observed cost characteristics of retail outlets in this way. The greatest difficulty is that the 'product' of the retail establishments of a given trade is differentiated, for variations occur in the quality and assortments of goods and services offered for sale. Because of this, the outputs and therefore the economic efficiencies (output per unit cost) of different outlets are difficult to compare, and conclusions are of limited worth concerning the outlets' relative economic efficiency. This problem was present in the case of Hobart's groceries outlets which embrace supermarkets, groceries and general stores with differing ranges of goods. Consequently, less attention is paid to drawing conclusions concerning their relative economic efficiency than to describing and accounting for their cost characteristics.[10]

Nevertheless, some conclusions are still drawn about the economic efficiency of Hobart's groceries outlets, using the information for the costs/unit output variates. These conclusions are supplemented by conclusions concerning the physical efficiency of the outlets, that is concerning their output per unit quantity, instead of output per unit cost, of factors employed. The physical efficiency variates which were employed were average weekly takings square foot of selling space ($A) for the last three months, average weekly takings per square foot of gross floor area ($A) for the last three months, average weekly takings per manhour worked for the last three months ($A), and average weekly takings per worker for the last three months ($A). The first two variates are measures of output/unit quantity of space occupied, the last two are measures of output/unit quantity of labour employed. Because of the presumably higher value and greater quantity of selling space used than space used for storage, office or other purposes in retailing, output per square foot of selling space is probably the better indicator of physical efficiency in the use of space occupied. Average weekly takings per manhour worked seems the better indicator of physical efficiency in the use of labour for a somewhat different reason. Because of the variations in trading hours between stores, number of workers employed is not as good a measure of labour input over a given time period as total manhours worked. All measures of physical efficiency suffer from the inadequacies of average weekly takings over the last three months as their real output indicator. They also suffer from the difficulties of comparing estimates of the same physical efficiency measure for different outlets, for not only may the type of 'product' vary between outlets, but also the type and quality of the resources employed. Strictly, an outlet can be said to operate with greater physical efficiency only if a greater output of a uniform good is produced per unit quantity employed of a uniform factor of production.[11]

The measures of costs and efficiency altogether constituted a set of fourteen variates whose gross or overall relations with location were first investigated. The results of the statistical analysis of the data for these variates for

Hobart's groceries outlets are set out in detail in Statistical Appendix 4 - Tables 4.10 to 4.23, and are summarized in Tables 5.1 to 5.7.

TABLES 5.1 - 5.4

TABLE 5.1

SUMMARY OF THE RESULTS OF ANALYSIS OF VARIANCE TESTS OF THE ASSOCIATION OF OUTLET PRICE LEVEL AND PRICES WITH (1) OUTLET LOCATION AND (2) TYPE OF OUTLET AND OUTLET LOCATION

COSTS AND/OR EFFICIENCY VARIATE	(ALL) GROCERIES OUTLETS BY				SUPERMKTS. BY			GROCERIES BY			GENERAL STORES BY		
	BUS. TYPE (GEN)	LOCN. IN B.A. TYPE (N,J)	LOCN. IN B.A. CLASS (N1-J4)	LOCN. IN REGNL. MKT.	LOCN. IN B.A. TYPE (N,J)	LOCN. IN B.A. CLASS (N1-J4)	LOCN. IN REGNL. MKT.	LOCN. IN B.A. TYPE (N,J)	LOCN. IN B.A. CLASS (N1-J4)	LOCN. in REGNL. MKT.	LOCN. IN B.A. TYPE (N,J)	LOCN. IN B.A. CLASS (N1-J4)	LOCN. IN REGNL. MKT.
VARIABLE COSTS (TOTAL)													
1. Av. amount outstanding on credit ($A)	/	o	/	x	-	-	-	-	(/)	/	/	(/)	(/)
2. Av. wkly costs of goods sold ($A)	/	-	x	-	-	-	-	-	-	o	-	-	/
3. Av. wkly advertising expenditure ($A)	/	o	/	o	-	-	-	-	o	o	-	-	/
4. Av. wkly wages ($A) /	/	-	x	-	-	-	-	-	(x)	x	o	o	/
5. Yearly land rates and taxes ($A)	/	-	x	-	-	-	-	-	-	x	-	-	x
6. Weekly rental ($A)	/	-	/	x	o	o	-	-	-	x	-	-	o
UNIT COSTS AND/OR EFFICIENCY													
Physical Efficiency													
7. Av. wkly takings/sq.ft. selling space ($A)	/	o	/	/	-	-	-	-	(/)	-	-	(/)	(/)
8. Av. wkly takings/sq.ft. gross area ($A)	x	x	-	/	-	-	-	-	x	-	(/)	-	(/)
9. Av. wkly takings/manhours worked ($A)	/	-	/	-	-	x	/	-	-	-	/	(/)	x
10. Av. wkly takings/workers ($A)	/	-	-	-	-	o	o	-	-	x	/	/	/
Unit Costs and Economic Efficiency													
11. Av. wkly rental/av. wkly takings	-	x	/	-	-	-	-	-	x	-	(/)	(/)	o
12. Av. wkly c.o.g.s./av. wkly takings	/	-	/	-	-	x	-	-	-	-	/	/	-
13. Av. wkly wages/av. wkly takings	-	x	-	/	-	-	-	-	x	-	(/)	/	(/)
14. Av. wkly ad. exp./av. wkly takings	/	-	/	/	-	-	-	-	/	o	-	-	x

/ F significant at 1% level) strong relation
x F significant at 5% level)
(/),(x) Form of relation for this business type separately is the same as that for all groceries outlets
o F significant at 10% level
- F not significant at 10% level

Sources: Statistical Appendix 4 - Tables 4.10 to 4.23; computer output for separate business types held by author.

TABLE 5.2

RANK ORDER OF THE MEAN VALUES OF COSTS AND EFFICIENCY VARIATES FOR THE OUTLETS IN EACH CLASS OF BUSINESS AREA AND REGIONAL MARKET (HIGHEST VALUE = 1)

COSTS AND/OR EFFICIENCY VARIATE	RANK OF MEAN VALUES FOR OUTLETS IN Business Area Class								Regional Market					
	N1	N2	N3	N4	J1	J2	J3	J4	CC	NH	M	G	SB	B
VARIABLE COSTS (TOTAL)														
1. Av. amount outstanding on credit ($A)	6	4	5	3	8	1	2	7	5	3	6	1	2	4
2. Av. wkly costs of goods sold ($A)	2	4	6	7	3	1	5	8	5	6	3	2	1	4
3. Av. wkly advertising expenditure ($A)	2	5	4	7	3	1	6	8	2	6	4	3	1	5
4. Av. wkly wages ($A)	2	4	5	8	3	1	6	7	3	6	4	5	1	2
5. Yearly land rates and taxes	2	7	4	5	3	1	6	8	4	6	2	3	1	5
6. Weekly rental ($A)	1	3	5	7	2	x	6	4	2	6	3	4	5	1
UNIT COSTS AND/OR EFFICIENCY														
Physical Efficiency														
7. Av. wkly takings/sq.ft. selling space ($A)	5	3	4	7	1	2	8	6	1	4	5	3	6	2
8. Av. wkly takings/sq.ft gross area ($A)	7	6	4	5	2	1	8	3	2	5	6	3	1	4
9. Av. wkly takings/manhours worked ($A)	1	4	7	6	5	2	3	8	5	4	6	2	3	1
10. Av. Wkly takings/workers ($A)	1	4	6	5	8	2	3	7	5	2	6	1	4	3
Unit Costs and Economic Efficiency														
11. Av.wkly rental/av.wkly takings	2	6	4	7	5	x	3	1	2	3	5	1	6	4
12. Av.wkly c.o.g.s/av.wkly tkgs	2	6	4	7	1	3	5	8	4	1	2	3	6	5
13. Av.wkly wages/av.wkly tkgs	4	3	1	6	8	2	7	5	4	2	3	5	6	1
14. Av.wkly ad. exp/av.wkly tkgs	2	5	4	7	3	1	6	8	4	6	3	5	2	1

x = no outlets paying rental

Sources: Statistical Appendix 4 - Tables 4.10 to 4.23.

TABLE 5.3

COSTS STRUCTURES FOR OUTLETS IN BUSINESS AREA CLASSES

OUTLETS IN BUSINESS AREA CLASS	MEAN AV. WEEKLY TAKINGS ($A)	% CHANGE, MEAN AV. WEEKLY TAKINGS a	MEAN AV. COSTS GOODS SOLD ($A)	% CHANGE, MEAN COSTS OF GOODS SOLD a	MEAN RATIO, COSTS GOODS SOLD TO TAKINGS b	EST. MEAN OVERALL GROSS MARGIN, % ON TAKINGS c	MEAN RELATIVE PRICE INDEX	MEAN OVERALL RANGE OF GOODS INDEX	MEAN AV. WEEKLY ADVERT. EXP. ($A)	MEAN AV. WEEKLY WAGES ($A)	MEAN AV. WEEKLY RENT. ($A) d	MEAN AV. AMOUNT ON CREDIT ($A)	% CHANGE, MEAN AV. WEEKLY ADVERTISING EXPENDITURE	% CHANGE, MEAN AV. WEEKLY WAGES a	% CHANGE, MEAN AV. WEEKLY RENTAL a	% CHANGE, MEAN AV. AMT. OUT ON CREDIT a	MEAN RATIO, ADVERT. EXP. TO TAKINGS b	MEAN RATIO, WAGES TO TAKINGS b	MEAN RATIO, RENTAL TO TAKINGS d
N1	2733	127.7	2465	174.2	.788	21	.967	331.2	28.6	132	60	163	694.4	78.3	66.6	-72.8	.006	.058	.029
N2	1200	36.3	877	26.7	.761	24	.978	253.0	3.6	74	36	601	-28.0	68.1	38.4	76.2	.002	.062	.010
N3	880	29.6	692	34.1	.775	23	.981	176.9	5.0	44	26	341	257.1	29.4	52.9	-46.2	.002	.067	.021
N4	679	-	516	-	.748	25	.990	164.6	1.4	34	17	634	-	-	-	-	.001	.052	.007
J1 e	1763	109.3	1516	121.6	.862	14	.969	697.0	28.3	129	41	91	472.2	222.5	57.6	-88.8	.006	.037	.013
J2	12100	586.3	9340	516.0	.777	22	.944	219.9	130.0	752	x	1000	359.3	482.9	x	998.9	.011	.064	x
J3	842	31.5	684	59.0	.763	24	.974	258.5	1.8	40	26	819	500.0	11.1	-7.1	-80.5	.002	.052	.028
J4	640	-	430	-	.703	30	.991	130.4	.3	36	28	470	-	-	-	-	.000	.052	.036

x No outlets were hired premises Sources: Statistical Appendix 4 — Tables 4.1, 4.10 to 4.19, 4.24.

a $$100 \left(\frac{\text{Mean for business area class} - \text{Mean for business area class below}}{\text{Mean for business area class below}} \right)$$

b These mean ratios of costs to takings were calculated by estimating the mean of the appropriate costs/takings ratio for the individual outlets of each business area class, using information only for those sampled outlets for each business area class which supplied data for both takings and the relevant type of costs. The mean ratios so estimated will not be identical with - though they will not differ greatly from - the mean ratios given by taking the figures for each business area class for (i) the mean of the costs of the particular type (estimated from the sampled outlets supplying costs data), and (ii) the mean of takings (estimated from the sampled outlets supplying takings data). The former mean ratios will differ from the latter because of the different process of estimation, and because of the inclusion of data for different sampled outlets. The effect of the different process of estimation is to make the mean ratio of costs to takings, i.e. the estimated mean of ratios (i) generally less than the ratio of estimated means for the business area classes with a large average scale of outlet, and (ii) generally more than the ratio of estimated means for the business area classes with a small average scale of outlet. The effects of the inclusion of data for different sampled outlets are not in general predictable. But where these may produce significant discrepancies between the values for the two sorts of mean ratio, these effects are noted (e.g. note e below).

(Cont.)

b (Cont.) One effect of the difference between the estimated mean of ratios and the ratio of estimated means for each business area class, is that the change between classes in the mean of ratios will be somewhat different from the change between classes in the ratio of estimated means; for example, the change between business area classes in the estimated mean ratio of costs of goods sold to takings will be different from the change between business area classes in estimated mean costs of goods sold divided by estimated mean takings. Now since changes in the latter sort of ratio are reflected in the % changes between business area classes, in the estimated means of the numerator and denominator variates separately, there are few occassions in the Table above where conflicts arise between the calculated % changes between business area classes in the means for costs and takings variates, and the changes in the estimated mean of ratio variates of the Table. For example, between business area classes N4 and N3, mean average weekly takings rises by 29.6%, mean average weekly wages by slightly less than 29.4%, which reflects a slight fall in the ratio of estimated mean average weekly wages to estimated mean weekly wages; however, the estimated mean ratio of wages to takings rises from .052 to .067. This sort of conflict occurs rarely, but minor discrepancies will remain between the % changes in estimated means for variates and in the chang in their estimated mean ratio. This highlights the fact that in the interpretation of the figures of this Table, much more emphasis is necessarily placed on those of general marked consistent trends in mean values of the total and unit costs variates between upper and lower order business area classes, rather than on the precise values for each variate for each business area class.

c 100 (1 - Mean ratio, costs of goods sold to takings).

d The total costs variate, mean average weekly rental, could be estimated from data for only those 40-50% of sampled outlets which were hired premises. However, other total costs variates and the variate mean average weekly takings were estimated from data for all sampled outlets, whether they were hired premises or not. The unit costs variate mean ratio, rental to takings, could be estimated from rental and takings data for only those sampled outlets which were hired premises, although it provided the best available mean unit costs of space occupied and economic space use efficiency measure for the outlets of each business area class. Because of the differences between the outlets in the sample used to calculate mean average weekly takings and the outlets of the samples used to calculate mean average rental and the mean rentals/takings ratio, the % changes between business area classes in estimated mean average weekly rentals, in estimated means for other costs variates and in estimated mean takings are difficult to compare. Also, the differences between % changes between business area classes in mean average weekly rentals and mean average weekly takings have little connection with the change in the mean ratio of rentals to takings.

e The outlets in business area classes J1 and J2 have been placed in reverse order to demonstrate more clearly the changes in outlet costs structures with increase in outlet scale from lower order (J4, J3; N3,N3,N2) to higher order (J2,J1; N1) business areas.
The figures for the outlets in class J1 have been affected by the inclusion of data for one very large scale sampled outlet for which takings figures were withheld, but for which estimates of costs of goods sold, wages, amnt. outstanding in credit, advert. exp. and weekly rental were given. The means (i) that mean outlet takings forclass J1, will be underestimated in relation to the means for each total costs variate, (ii) that the % changes in the mean for each costs variate between the outlets of class J1 and J2 will not accurately reflect the extent to which these changes are disproportionate to the change in takings; and (iii) that the mean ratios of costs of goods sold, adv., wages and rentals to takings, will be underestimated for outlets of class J1 because of the ommission of information for one large-scale sampled outlet with presumably very high mean ratios, going by those for the large-scale outlets of other business area classes.

TABLE 5.4

RELATION BETWEEN OUTPUT AND SPACE OCCUPIED FOR OUTLETS BY CLASS OF BUSINESS AREA

OUTLETS IN BUS. AREA CLASS	MEAN AV. WKLY TAKINGS ($A)	% CHANGE IN MN. AV. WKLY TAKINGS [a]	MEAN GROSS FLOOR AREA (sq.ft.)	% CHANGE IN MN. G.F.A. [a]
N1	2733	127.7	2423	104.99
N2	1200	36.3	1182	65.77
N3	880	29.6	713	-17.76
N4	679	--	867	--
J2	12100	586.3	3950	237.05
J1[b]	1768	109.3	1172	-24.87
J3	842	31.5	1560	175.61
J4	640	--	566	--

a $100 \left(\frac{\text{Mean for bus. area class - Mean for b.a.c. below}}{\text{Mean for business area class below}}\right)$.

b The outlets in business area classes J1 and J2 have been placed in reverse order to demonstrate more clearly the changes in outlet space consumption with changes in outlet scale and location.

Sources: Statistical Appendix 4 - Tables 4.1, 4.7.

DESCRIPTION OF THE GROSS RELATIONS OF COSTS, EFFICIENCY AND LOCATION BY CLASS AND TYPE OF BUSINESS AREA

Location by Class of Business Area, Costs and Efficiency

Eleven of the fourteen costs and efficiency variates showed strong, predictable gross relations with outlet location classified by class of business area (Tables 5.1 to 5.3). Of the three which did not, two were the variates which were the poorer measures of physical efficiency, namely, average weekly takings per square foot of gross floor area and average weekly takings per worker. The third was the unit cost and economic efficiency variate average weekly wages/average weekly takings, the results for which were dubious because of the suspect wages data supplied by Hobart groceries outlet entrepreneurs. Consequently, the lack of association of these three variates with location may be discounted. The conclusion may be drawn that the evidence for Hobart's groceries outlets lends support to one of the propositions of the first and main hypothesis: "that the locations of the establishments of a retail trade become significantly interrelated in predictable ways with their own establishment's cost characteristics."

The form of the relations with location by class of business area was different for the total cost variates and the unit cost and efficiency variates. The outlet total cost variates all showed a similar simple form of strong, predictable relation with outlet location, but the relations for the unit costs and efficiency variates were more complicated (Tables 5.2, 5.3).

Total Cost Variates and Location by Class of Business Area

Five of the six total cost variates (average weekly cost of goods sold, average weekly advertising expenditures, average weekly wages, yearly land rates and taxes and weekly rental) increase consistently from the outlets of the lower orders (N2 to N4; J3, J4) to the outlets of the higher orders (N1, J1, J2) of the eight business area classes (Tables 5.2, 5.3). The increase is particularly marked in the case of advertising expenditures. The maximum total cost of every type is recorded by the outlets of the J2 centre of Sandy Bay.

On the other hand, the sixth total cost variate, average amount outstanding on credit, shows a reverse trend, with the mean values in general decreasing instead of increasing from the lower to the higher order business areas. This reflects a decline in the provision of customer services by outlets in higher order locations. An anomaly is the higher order centre of Sandy Bay (J2), which is in the highest income regional market, and where the mean value for outlets of average amount outstanding

on credit is the highest of all. The reverse relation of outlet location by class of business area and the cost of the provision of consumer services seems a particularly significant one, since both medium scale groceries and small scale general stores display exactly the same sort of strong predictable association, despite the statistical difficulties of obtaining such an association with the small samples of each type of outlet in each locational class (Table 5.1).

There are very high coefficients of variation for each total cost variate for the outlets of each business area class (Statistical Appendix 4 - Tables 4.10 to 4.15). This suggests that the changes in outlet mean values with increase in business area status are caused by changes between business area classes in the proportion of outlets at different points along the scale from high to low total cost, rather than by changes between classes in the value of each outlet to a close correspondence to a new class mean position. Nevertheless, it still seems permissible to interpret the consistent trends in mean values as evidence of a general rise in the total costs of most types, and thus in total aggregate costs, with change in outlet location from lower order to higher order business areas.

Unit Cost Variates and Location by Class of Business Area

At first glance, all four outlet unit cost variates for Hobart's groceries outlets display most unexpected relations with outlet location classified by class of business area. Firstly, the ratios of costs of goods sold to takings and of advertising expenditures to takings increase with increase in business area status, that is, they increase rather than decrease as takings and output increase and as total outlays on goods for sale and advertising increase (Tables 5.2, 5.3). Secondly, while the wages/takings ratios are relatively low for the larger scale self-service outlets of the higher order N1, J1 and J2 centres, these three classes of centre do not have the lowest values of all (Tables 5.2, 5.3). Thirdly, the ratio of rental to takings has a peculiar pattern, the average being highest for the outlets in the lowest order J centres (J3, J4) and in the highest order N centre (N1), and lowest for the outlets of the highest order J centre (J1) and the lower order N centres (N2, N4) (Tables 5.2, 5.3). However, after further analysis, the patterns displayed by the unit cost variates can be seen to arise from the inadequacies of these variates as unit costs measures for Hobart's groceries outlets. It can be shown that the real unit costs of goods sold, of advertising, of labour and of space occupied probably have much less peculiar relations with outlet scale and with outlet location by class of business area.[12]

Unit cost of goods sold. The rise in the outlet ratio of cost of goods sold to takings, as the locations of outlets change from lower to higher order business areas, implies a decline in overall gross profit margins as outlet takings and outlays on goods increase.[13] Since the 'overall gross on sales' is indicative of the differences between costs of goods sold and their selling prices, a decline in the overall gross on sales and a rise in the ratio of costs of goods sold to takings reflect price reductions over some or all of a given set of groceries lines, and/or the extension of the range of individual products for customer choice by the addition of new low margin, low price goods.[14]

The evidence for Hobart's groceries outlet accordingly points to a situation where, as takings and outlays on goods sold rise rapidly with change in outlet location for lower order to higher order business areas, outlet gross margins and prices markedly fall (Table 5.3).[15] Because of the strong downward trend in prices, the increase in takings very markedly and increasingly underestimates the increase in real output for the outlets of successively higher order business areas, so that the increase in the mean ratio of cost of goods sold to takings markedly and increasingly overestimates the change in mean costs of goods sold per unit real output. So, although at first glance an upward trend in the mean ratio of cost of goods sold to takings seems to indicate increasing mean unit costs for the outlets of successively higher order business areas, it possibly arises in quite the reverse situation. Actual falls in cost per unit real output are also consistent with evidence of the availability to Hobart groceries retailers of the usual sorts of purchase and delivery price rebates directly geared to quantity of goods bought for sale.[16, 17] Thus it may be concluded that, for Hobart's groceries outlets, while the real unit cost of goods sold does have a strong predictable relation with outlet location by class of business area, the actual form of the relation is probably the reverse of that shown by the data for the outlet ratio of cost of goods sold to takings in Table 5.3.

Unit advertising costs. A similar conclusion may be drawn about the apparent increase in unit advertising cost as outlet takings and total advertising expenditures rise with change in outlet location from lower order to higher order business areas (Table 5.3). Again, as takings quickly rise, gross margins and prices fall, so that increases in takings badly and increasingly underestimate the increases in real output as advertising expenditures increase. Thus a much smaller increase-and even a decrease - may occur in the ratio of advertising expenditures to real output as increases occur in the ratio of advertising expenditures to takings.[18] An actual decrease in the ratio of advertising expenditures per unit real output is supported by evidence of; increases with outlet scale in the reductions in the cost to retailers of advertising services, through percentage rebates from manufacturers or wholesalers or

retailer co-operative buying and advertising groups; the percentage of advertising costs rebated increases with the quantity of goods the retailer offers for sale.[19]

But any decline in outlet real unit advertising cost with increasing outlet scale is likely to be small in money terms, and the percentage rates of decrease in real unit advertising cost will probably be much less than that for cost of goods sold. For the differences between business area classes in mean outlet advertising expenditures are small in money terms, especially in comparison with the differences between business area classes in mean outlet cost of goods sold (Table 5.3). Accordingly, changes in unit costs of advertising between business area classes will be insignificant in value. Also, the generally low outlays on advertising mean that quite small amounts transferred to advertising expenditures - as lower prices for advertising services lead to substitution of advertising expenditures for labour costs, rentals and for the costs of providing consumer services - may take up a much higher proportion of any changes in advertising expenditures than similar transfers may do in changes in costs of goods sold. The decreases in the real unit cost of advertising (through greatly increased scale of output) and through lower price of advertising services may therefore be counterbalanced to a far greater extent by increases in real unit advertising cost (through factor substitutions) than in the case of cost of goods sold. Thus any decreases in real unit advertising cost will be less marked than decreases in real unit costs of goods sold with increase in outlet scale and change in outlet location from lower order to higher order business areas.[20]

This conclusion is supported by the fact that comparison of the percentage rates of increase in advertising expenditures with the percentage rates of increase in wages, amount outstanding on consumer credit, and rental, in general does seem to reveal a high rate of conscious or unconscious substitution of advertising expenditures for the other categories of expenditure with increase in outlet scale (Table 5.3).[21] But there are two interesting anomalies. Firstly, the entrepreneurs of the largest scale outlets of business area class J2 (Sandy Bay) substitute expenditures on credit and on wages for expenditures on advertising. Here the substantial though unequal rates of increase in all three types of expenditure, and consequently in their ratios to takings, indicate not only substitution but also the erosion of the net profit component of a diminished gross margin. Secondly, the entrepreneurs of local shopping centres (class N2) substitute expenditure on credit for expenditures on rentals, on advertising and on range of stock. In the outlets of this business area class, a much higher priority is placed on the provision of special consumer services than in the outlets of other business area classes.

Unit labour costs. The unit labour costs variate, the average outlet ratio of wages to takings, displays no regular decrease or

increase with business area status; business area classes rank N3, J3, N2, N1, J4, N4, J3, and J1 from highest to lowest with respect to their mean outlet average wages to takings ratio (Table 5.2). However, despite this, it can be shown that the real unit labour cost of Hobart's groceries outlets may decrease as outlet scale increases and as outlet location changes from lower to higher order business areas. The outlet wages to takings ratios do not display this relation only because they are poor measures of the changes in real unit labour cost with changes in outlet scale and location. Firstly, because the entrepreneurs of small-scale outlets underestimated their wages, figures for the wages component of the wages takings ratio are likely to underestimate the labour costs of the many small-scale outlets of the lower order business areas (N3, N4, J4) and also of the small-scale outlets in the C.R.A. So the rates of increase in total wages paid are probably overestimated in relation to the rates of increase in outlet scale between the lower order (N2 to N4; J3, J4) centres and the higher order (N1 and J2) centres; the rates of increase in total wages paid are also probably slightly overestimated in relation to the rates of increase in outlet scale between lower order centres and the C.R.A. Then, too, the takings component of the wages/takings ratio increasingly underestimates real outlet output with increasing outlet scale. It therefore seems clear that the mean ratio of wages to takings for the outlets of the higher order business areas (N1 and J2 classes) grossly overestimates their mean unit labour cost ratios relative to those for the outlets in lower order business areas (very much underestimated outlet output). It also seems clear that the mean ratio of wages to takings for the outlets of the C.R.A. may overestimate the mean unit labour costs ratio relative to that for the outlets in each lower order business area class (underestimated outlet labour costs, very much underestimated outlet output).

Now the mean wages/takings ratios for the outlets of N1, J1, and J2 business areas already rank fourth, eighth and second respectively among those for the eight orders of business area (Table 5.2). Allowing for the means' relative overestimation of their respective mean outlet real unit labour cost ratio, the outlets of these highest order business areas probably lie at or very near the bottom of the real unit labour cost scale.[22] Thus, real unit labour cost may actually decline with increase in outlet scale from lower to higher order business areas. The decline may be least from the real unit labour cost for the outlets in lower order business areas to that of the outlets of the high order J2 regional centre of Sandy Bay, which ranks as high as second by the wages/takings ratio.

The percentage rates of decline of outlet real unit labour cost with change in outlet location from lower to higher order business areas may be greater than the rates of decline of real unit cost of goods sold or real unit advertising cost. For not only may increasing output effect decline in unit labour cost, but also substitutions of expenditures on goods for sale and advertising for expenditures on labour may occur and effect further declines, as

heavily advertised, low-price, large product ranges, and self-service replace less heavily advertised, higher priced goods sold with personal service. Table 5.3 contains evidence that such substitutions do occur in the case of Hobart's groceries outlets, in accord with experience of groceries retailing elsewhere.[23]

Unit rentals. In contrast with the other unit costs, the real relations of the ratio of rental to output with scale and location are very difficult to discern. Firstly, it is hard to compensate for the two following deficiencies in the ratios of rentals to takings as measures of the ratios of rentals to real output for Hobart's groceries outlets:

(i) the increasing underestimation by increases in takings of increases in output with change in outlet location from lower order to higher order business areas;

(ii) the overestimation of rentals paid for retail space for outlets in lower order business areas, where data for rentals often included payments for hired equipment and residential premises as well as for retail floor space.

Secondly, it is hard to allow for the effects of:

(i) the probable rise in rentals per unit floor space between outlets of less accessible lower order business areas and outlets of more accessible higher order business areas, with peak values in the C.R.A.;

(ii) the changes in the consumption of space as rentals per unit floor space rise and quantity of output increases, giving disproportionately small amounts of expensive space occupied per outlet in the C.R.A., and disproportionately large amounts of cheap space occupied per outlet in the lower order business area classes (Table 5.4);

(iii) substitution of advertising expenditures and expenditures on goods for sale for rental (Table 5.3).

The overestimation of the rentals for the outlets in classes N3, N4, J3 and J4 may make their rental/takings ratio too large an estimate of rental/real output; underestimation of output by takings for outlets in both business area classes N1 and J1 may also make their rental/takings ratios too high an estimate of rental/real output. On the other hand, consideration of the effects of the price and quantity of space consumed leads to somewhat different conclusions. The lavish use of low price space by the small outlets in class N4 for the output may lead them with very low unit rental. The very restricted use of expensive floor space may also give the large outlets of the C.R.A. relatively low unit rentals, while in contrast, the use of relatively large amounts of expensive space by large-scale outlets of business area class N1 could give

them relatively higher unit rentals. Finally, the substitutions of cost of goods sold and advertising expenditures for rentals, even though only small amounts may be involved, do imply depressed rates of increase or accelerated rates of decrease in unit rentals between the small-scale outlets in lower order and the larger scale outlets in higher order business areas.

Overall, the data in Table 5.3 are consistent with falls in outlet unit rentals between lower order and higher order business areas, with an accelerated decline between the outlets of lower order business areas and the outlets in the C.R.A. But two deviations do seem to occur: in the case of the small-scale outlets of the lowest order business area class (class N4) where space is very cheap and where very low unit rentals are found, and in the case of the large-scale outlets of the highest order business areas outside the C.R.A. (class N1), where large quantities of very high price space may be occupied and where very high unit rentals are found.[24]

Outlet Cost Structures and Location by Class of Business Area: Summary

The relations of groceries outlet location with the unit cost variates, with real unit costs, and with the total cost variates are indicative of systematic spatial variations in Hobart in outlet cost structures. With change in outlet location from lower order to higher order business areas, outlet takings and output increase, and four of the five most important types of total cost also increase: thus, it may be concluded that outlet total aggregate costs also rise.[25]

On the other hand, as outlet outputs and takings increase, and as total aggregate costs increase, real unit cost of goods sold, real unit cost of advertising and real unit labour cost decline. In addition, despite anomalies, real unit rentals and real unit costs of customer service provided decline with increase in output.[26]

The decreases in real unit costs of customer services with increases in outlet scale and changes in outlet location from lower order to higher order business areas are probably more rapid than the decline in any other type of unit cost. This is because, with increasing scale, entrepreneurs compete more by lowering prices, by using more lower cost advertising, and by purchasing at a lower cost and offering for sale a much wider variety of goods, than they do by offering customer services. Unit labour costs probably decline more sharply than unit costs of goods sold or advertising for a similar reason: with increasing scale, and change in outlet location from lower order to higher order business areas, entrepreneurs try to reduce person to person selling and to use more advertising, lower prices, and wider ranges of goods to compete.

The reductions in expenditure on personal selling and on customer services have different effects on the rates of decline of the real unit cost of advertising and the unit costs of goods sold with increase in outlet scale. Unit costs of advertising probably decline at a lower rate than unit costs of goods sold. For any transfer of expenditures to the only small total expenditures on advertising probably depresses the rate of decline in unit advertising costs to a much greater extent than the rate of decline in unit costs of goods sold is depressed by transfer of expenditures to the already high expenditures on goods for sale.

The differential rates of decline in the different types of unit cost - of labour, goods for sale, advertising and customer services - reflect an important set of substitutions which entrepreneurs make consciously or unconsciously as outlet scale increases and as outlet locations change from lower to higher order business areas. Expenditures on goods for sale and advertising are substituted for expenditures on customer services and on labour, especially the labour involved in personal rather than self-service selling.[27]

Given the differing relations of the different types of unit costs with output, it is not easy to discern the possible relations of their aggregate with outlet scale. But because total expenditures on wages, advertising and goods for sale are very much greater than total expenditures on rentals and customer services, the markedly declining unit cost pattern of the former will have the greatest effect on the relation of aggregate unit costs with output. Consequently, it may be concluded that, for Hobart's groceries outlets, aggregate unit costs decrease as outlet scale increases and as outlet locations change from lower to higher order business areas.[28]

Efficiency and Location by Class of Business Area

Economic efficiency. The ways in which each type of real unit cost and aggregate unit costs change with outlet location have implications for the economic efficiency of outlets in each class of business area. The decline of aggregate unit costs reflects a rise in the overall economic efficiency of outlets with increase in outlet scale and change in outlet location from lower order (N2 to N4; J3, J4) to higher order (J1, J2, N1) business areas; the most efficient establishments are the largest scale outlets of business area class J2 (The Sandy Bay regional shopping centre).

In addition, the most rapidly declining type of unit cost, the cost of the provision of customer services, may reflect very rapidly rising economic efficiency in the use of resources to provide customer services with increase in outlet scale and change in outlet location from lower to higher order business areas. However, conclusions concerning the economic efficiency of outlets in providing customer services are particularly suspect because of the changes in the kind of 'product' with changes in the service component of the 'product' as outlet scale increases.

On the other hand, as outlet scale increases, the rapid decline in unit labour cost, and the less rapid declines in unit cost of goods sold and advertising, do appear to reflect concomitant increases in economic labour efficiency, economic efficiency in the acquisition of goods for sale, and economic efficiency in the use of advertising respectively. The largest scale outlets of the Sandy Bay shopping centre again probably have the highest economic efficiency in the acquisition of goods for sale and in the use of advertising; however, because of labour inefficiency associated with marked fluctuations in daily sales in suburban shopping centres, the outlets with the highest economic labour efficiency are not located there but in the Central Retail Area.

Economic efficiency in the use of space bears a somewhat different relation to outlet scale and location; the most efficient (lowest unit rental) outlets are both the smallest scale outlets of the very lowest order business area class N4, and the large-scale outlets in the Central Retail Area; the least economically efficient are probably the large-scale outlets of the suburban regional shopping centres. In general, though, unit rentals decline like other unit costs, and economic efficiency in the use of space increases with increase in outlet scale and change in outlet location from lower order to higher order business areas.

Physical efficiency. The changes in economic efficiency in the use of labour and space may be compared with the changes in physical efficiency in the use of labour and space with increase in outlet scale. The best measure of physical efficiency in the use of labour, namely, average weekly takings per manhour worked, reveals that this sort of efficiency in general increases with increase in economic efficiency in the use of labour, with increase in outlet scale, and with change in outlet location from lower order to higher order business areas (Tables 5.1, 5.2, 5.3). These variations in physical efficiency in the use of labour with outlet scale and location seem particularly significant, since the same type of relation appears for the small sample of general stores alone as well as for the large sample of all groceries outlets together (Table 5.1).[29]

With regard to physical efficiency in the use of space, there is also a general increase in the best measure, average weekly takings per square foot of selling space, with increase in economic efficiency in the use of space, with increase in outlet scale and with change in outlet location from lower to higher order business areas (Tables 5.1, 5.2, 5.3). The relations of physical efficiency in the use of the space with outlet scale and location also seem particularly significant since they appear for the small samples of groceries and general stores separately, as well as for all groceries outlets together (Table 5.1).[30]

Implications for Location by Type of Business Area, Costs and Efficiency

Strong predictable relations exist of outlet location by class of business area with outlet cost and efficiency characteristics for Hobart's groceries outlets. However, the existence of these

very relations does mean that little overall association appears of outlet cost and efficiency characteristics with outlet location classified, not by class, but by type of business area (Table 5.1). For it is implicit in the preceding discussion that the form of the association of outlet costs and efficiency characteristics with outlet location by class of business area is the same for the outlets of the business area classes within each business area type. Values for the costs and efficiency characteristics for the outlets of the lower order N centres (N2 to N4) are comparable with the values for the outlets in the lower order J centres (J3, J4) (Table 5.3). The same holds for the outlets in the higher order N and J centres (N1, J1, J2). Thus in general little difference appears between the costs and efficiency characteristics of the outlets of N centres taken all together and those of the outlets of J centres taken all together; there is little overall association of outlet cost and efficiency characteristics and outlet location classified by business area type.

In addition, what overall association does appear occurs as the result of the peculiarities of the outlets of a particular business area class with respect to an individual costs or efficiency variate, rather than as the result of general differences between the outlets of N and J type business areas. For example, peculiarly high expenditures on customer services by the entrepreneurs in class J2 (the Sandy Bay regional shopping centre) produce a difference between the means of average amount outstanding on credit for outlets in N and J business area types which verges on statistical significance at the 5% level (Tables 5.1, 5.2).

It is clear that the general lack of overall association of outlet cost and efficiency characteristics with outlet location classified in one way (by business area type) is the result of the strong, predictable relations of outlet cost and efficiency characteristics with outlet location classified in another more detailed way (by business area class). It would therefore be absurd to conclude that any evidence exists which is contrary to the hypothesized strong, predictable relations between outlet location and outlet costs and efficiency characteristics.

All these observations are consistent with earlier ones, that the groceries outlets in joint business areas have counterparts of the same scale in some similar order of nucleated shopping centre, and that the lack of relations of groceries outlet location by type of business area and groceries outlet scale cannot be taken as evidence against the hypothesized relations of outlet scale and location.[31]

DESCRIPTION OF THE GROSS RELATIONS OF COSTS, EFFICIENCY AND LOCATION BY REGIONAL MARKET

The Lack of Overall Relations of Individual Costs and Efficiency Variates with Regional Market Location

Implications of the Lack of Gross Relations

Like the relations with outlet location classified by business area type, the overall relations of outlet costs and efficiency characteristics with outlet location classified by regional market are limited in number. Only six of the fourteen costs and efficiency variates have overall relations with outlet location by regional market which are statistically significant at the 5% level. They are the total costs variates, average amount outstanding on credit and weekly rental; the unit costs and economic efficiency variates, the ratio of average weekly wages to average weekly takings, and the ratio of average weekly advertising expenditures to average weekly takings; and the physical space use efficiency variates, average weekly takings per square foot of selling space and average weekly takings per square foot of gross floor area (Table 5.1).

The low number of statistically significant relations of outlet costs and efficiency characteristics with regional market location is surprising, especially since scale of outlet varies significantly with regional market location. It is not as simply explained as the lack of overall association of outlet cost and efficiency characteristics with outlet location by type of business area. At first sight, it would seem that the hypothesized associations of outlet location and outlet cost and efficiency characteristics might arise only with the sort of locational variation which occurs between sites in different classes of business area, and not with the sort of locational variation which, as was argued in chapter three, could occur between different regions of the city. This in turn would suggest that any theory of retail location which might be developed from the hypotheses of this work should be restricted to accounting for the locational variation of retail outlets in different heirarchical classes of business area. It would also suggest that either different sorts of the hypotheses need to be advanced to account for the locations of outlets in different parts of the city, or that the differences in outlet location between different regional markets in the city are not as important in connection with the operation of retail outlets as they have been argued to be, and thus not sufficiently significant as to warrant theoretical explanation. However, after closer examination, the lack of overall relations of a large number of total costs, unit costs and efficiency variates with outlet location by regional market do not lead to these conclusions.

TABLES 5.5 - 5.6

TABLE 5.5

COSTS STRUCTURES FOR OUTLETS IN REGIONAL MARKETS

OUTLETS IN REGIONAL MARKET	TYPE OF (a) MARKET	MEAN AV. WKLY TKGS. ($A)	MEAN AV. WKLY COSTS GOODS SOLD ($A)	MEAN AV. WKLY ADVG. EXP. ($A)	MEAN AV. WKLY WAGES ($A)	* MEAN AV. AMT. OUT ON CREDIT ($A)	* MEAN AV. WKLY RENTAL ($A)	MEAN YRLY. LAND RATES, TAXES ($A)	MEAN RATIO COSTS GOODS SOLD TO (b) TAKINGS	* MEAN RATIO ADVG. EXP. TO TAKINGS (b)	* MEAN RATIO WAGES TO TKGS. (b)	MEAN RATIO RENTAL TO TKGS. (c)	MEAN RELATIVE PRICE INDEX	EST. MEAN OVERALL GROSS MARGIN % TAKINGS (d)	MEAN OVER-ALL RANGE OF GOODS INDEX (No. Varieties Only)	Pn O/LET WITH DELI-VERY SRVCE
SANDY BAY	suburban (peripheral)	2192	2136	18	147	719	25	328	.710	.004	.039	.006	.981	29	269	.93
GLENORCHY	suburban (peripheral)	1337	1036	10	56	888	28	191	.759	.002	.043	.021[e]	.990	24	209	.90
BELLERIVE	suburban (peripheral)	1223	882	6	86	470	63	142	.744	.003	.074	.015	.982	26	256	1.00
MOONAH (e)	mid suburban	1182	970	9	58	365	29	268	.815	.002	.062e	.012	.977	18	190[f]	.64
CNTRL CITY	inner sub-urban	1084	858	10	63	246	33	166	.757	.002	.047	.016	.985	24	186	.80
NTH HOBART	urban	774	670	2	47	473	18	142	.767	.001	.065	.015	.979	22	186	.79

* Costs variate shows relation with regional market location which is statistically significant at the 5% level.

___ Values reflecting specialisation by regional market in one of the means of competition; price, variety of goods, personal selling, other customer services, advertising, location. Because of this specialisation the values of total and unit costs variates in each market reflect substitutions between different categories of expenditure.

(Cont.)

TABLE 5.5 (Cont.)

COSTS STRUCTURES FOR OUTLETS IN REGIONAL MARKETS

OUTLETS IN REGIONAL MARKET	TYPE OF MARKET(a)	MEAN AV. WEEKLY TAKINGS ($A)	% CHANGE MEAN AV. WEEKLY TAKINGS(g)	% CHANGE MEAN AV.WKLY COSTS OF GOODS SOLD (g)	% CHANGE MEAN AV.WKLY ADVERT. EXP. (g)	%CHANGE MEAN AV.WKLY WAGES (g)	% CHANGE MEAN AMOUNT OUT ON CREDIT(g)	% CHANGE MEAN AV.WKLY RENTAL	% CHANGE YEARLY LAND RATES, TAXES (g)
SANDY BAY	outer	2192	63.95	106.17	80.00	165.50	-19.03	10.71	71.73
GLENORCHY	sub-	1337	9.32	17.46	67.00	-34.88	88.94	-55.56	34.51
BELLERIVE	urban	1223	3.47	-9.07	-33.33	48.28	28.77	117.24	-47.01
MOONAH - mid outer sbn		1182	9.04	13.05	-10.00	-7.93	48.37	-12.12	61.45
CENTRAL CITY	inner	1084	40.05	28.06	400.00	34.04	-47.99	83.33	16.90
NORTH HOBART	subn.	774	-	-	-	-	-	-	-

— Values reflecting specialisation by regional market in one of the means of competition; price, variety of goods, personal selling, other customer services, advertising, location. These values reflect substitutions between different categories of expenditure due to this sort of specialisation.

a The outer suburban market of Sandy Bay has the highest median annual aggregate household income of all markets, and the Central City Market the lowest.

b These mean ratios of costs to takings for regional markets were estimated in an analagous manner to the mean costs/takings ratios for business area classes, and have similar properties. (See note b, Table 5.3). A special effect of the process of estimation of the mean ratios for regional markets is to make the mean ratio of costs to takings sometimes much less than the ratio of the figures given in the Table for estimated mean costs and estimated mean takings. This will occur in a market with a few extremely large outlets, or for a numerically small costs/takings ratio in a market with a few large outlets. It is clear from the Table above that large discrepancies occur in the case of the Sandy Bay market with its two huge supermarkets, for the mean ratios costs of goods sold/takings, advertising expenditures/takings, wages/takings and rentals/takings, are considerably lower than the ratios of the figures for the mean of the relevant costs variate and for mean takings (for example, mean ratio, costs of goods sold to takings, 0.71, ratio of mean costs of goods sold to mean takings, 0.97). Somewhat less obviously, this sort of discrepancy also occurs in the Moonah, Glenorchy and Central City markets, the only other markets with supermarkets, in the case of the low value estimated mean ratio, advertising expenditures to takings. These discrepancies reveal obvious difficulties for the interpretation of figures in the Table above. This gave grounds for the decision to place most emphasis on the general consistent trends, if any, in the values for total and unit costs variates between the groups of inner city, mid-surban and outer suburban markets, rather than on the precise values for each variate for each market.

(Cont.)

TABLE 5.5 (Cont.)

COSTS STRUCTURES FOR OUTLETS IN REGIONAL MARKETS

c The changes in the mean ratio, rentals to takings, between regional markets will bear little relation to the changes in mean takings and in the means of total costs variates other than rentals, for the same reason that the changes in the mean ratio of rentals to takings between business area classes do not. (See note d, Table 5.3).

d 100 (1 - Mean ratio, costs of goods sold/takings).

e The mean ratio, wages to takings (0.062) for the Moonah market is probably overestimated because of the lack of wages data for several of the large-scale, low wages/takings outlets in the market. Similarly the mean ratio, rentals to takings (0.02) for the Glenorchy market is probably overestimated because of the lack of accurate rental data for several of the smallest probably low unit rental corner stores.

f Outlets of the Moonah market specialise in offering ranges of goods which are generally strictly limited to quick selling, lowest price best-known manufacturers' brands and staples, with sometimes a selection of continental goods to cater for the large immigrant population of this market, which is concentrated in Springfield and Risdon.

g $100 \left(\frac{\text{Mean for market} - \text{Mean for market with next largest mean takings}}{\text{Mean for market with next largest mean takings}} \right)$.

Sources: Statistical Appendix 4 - Tables 4.1, 4.10 to 4.19, 4.24.

TABLE 5.6

PHYSICAL EFFICIENCY OF OUTLETS IN REGIONAL MARKETS

PHYSICAL EFFICIENCY VARIATES, AND OUTLET SCALE	MEAN FOR OUTLETS IN REGIONAL MARKET					
	S.BAY	G'ORCHY	B'RIVE	MOONAH	C.CITY	N.HBT
	/ peripheral suburban/			mid. subn.	/ inner suburban /	
	/ o u t e r s u b u r b a n /					
Efficiency						
* Av. weekly takings per sq.ft. selling space ($A)	1.18	1.64	1.70	1.22	2.00	1.28
* Av. weekly takings per sq.ft. g.f.a. ($A)	1.36	1.34	1.12	.88	1.36	1.06
Av. weekly tkgs per manhours worked ($A)	5.82	5.86	6.06	5.06	5.08	5.60
Av. weekly tkgs per worker ($A)	316	368	322	296	304	340
Output						
Av. weekly takings ($A)	2192	1337	1223	1182	1084	774
Space Input						
Selling space (sq.ft.)	1667	851	802	890	575	604
Gross floor area (sq.ft.)	1852	1150	1309	1277	814	911
Labour Input						
Total manhours worked per week	327	187	198	170	188	145
Total number of workers	6.41	3.08	3.67	2.82	3.16	2.17

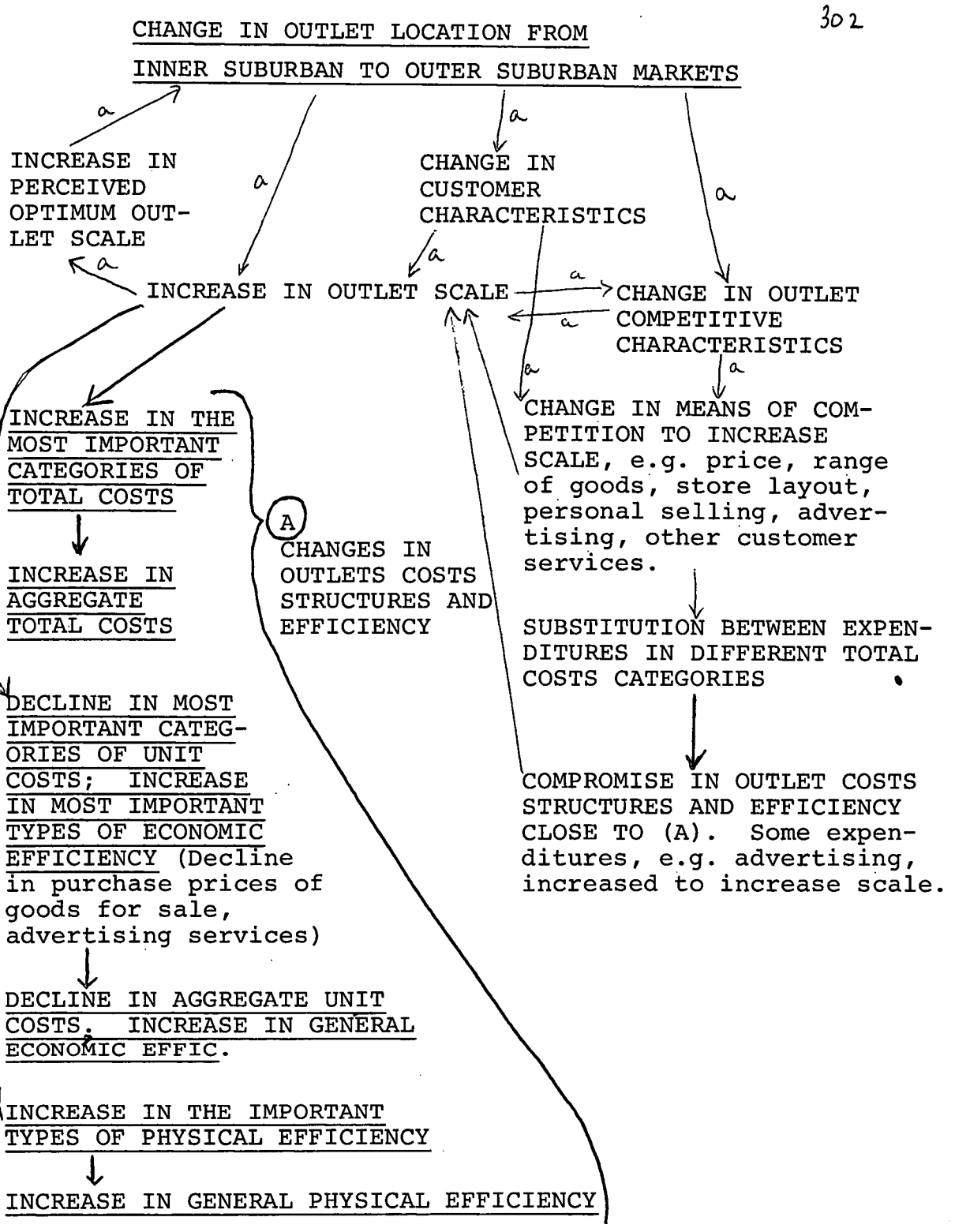
* Efficiency variate with a relation which is statistically significant at the 5% level with outlet location classified by regional market.

—— Values reflecting specialisation in large quantities of selling space (Sandy Bay) or large quantities of gross floor space (Bellerive), or both (Moonah); or small quantities of very high cost space (Central City); in turn reflected in specialisation in expenditures on rentals or land rates and taxes in Table 5.5. Entrepreneurs may be trying to take advantage of the accessibility of new sites to customers or the opportunities which sites permitting enlarged premises give for better stocks and better displays in competition for revenue.

=== Values reflecting specialisation in personal selling by a large number of employees (Sandy Bay), or (a) small numbers of high wage adult employees working long hours (North Hobart), or (b) medium-high numbers of adult employees working relatively short hours (e.g. the conventional 40 hour week). (Bellerive). These values are in turn reflected in specialisation in wages in Table 5.5.

Sources: Statistical Appendix 4 - Tables 4.1, 4.3, 4.4, 4.7, 4.8, 4.20 to 4.23 .

FIG V.1



→ Secondary linkage

a These relations are discussed in Chapter 4, and are shown in Figs. IV.6, IV.7 and IV.8

FIG. VI.I IMPORTANT SECONDARY LINKAGES CONNECTING OUTLET COSTS AND EFFICIENCY CHARACTERISTICS AND OUTLET LOCATION BY REGIONAL MARKET, GROCERIES OUTLETS, HOBART.

Effects of Secondary Relations on the Regional Market Means for Each Cost and Efficiency Characteristic

Firstly, Tables 5.5 and 5.6 show that, although the majority of costs and efficiency variates have no statistically significant overall relation with location by regional market, important differences between some regional market means for every cost and efficiency variate still seem to appear.[32] Secondly, Tables 5.5 and 5.6 also suggest that where a statistically significant overall relation is lacking, this may primarily be the result of the conflicting strong and close relations of the outlet costs or efficiency variate with, on the one hand, outlet scale which varies by regional market, and with, on the other, the means of competition which vary too by regional market. That is, the lack of statistically significant overall relations may be the result of the conflicting effects of certain strong, predictable secondary linkages of outlet location classified by regional market with outlet costs and efficiency characteristics. The secondary linkages envisaged are shown diagramatically in Figure V.1. If they are present, then it may be concluded that strong, close, predictable relations of each outlet costs and efficiency characteristic with outlet location classified by regional market exist as hypothesized, even though they are not in each case manifested as strong, predictable overall relations.[33] Tables 5.5 and 5.6 provide evidence that the relations shown in Figure V.1 are present in the case of Hobart's groceries outlets.

Tables 5.5 and 5.6 show how changes in outlet location from inner suburban to outer suburban regional markets in Hobart are associated with significant changes in outlet scale (average weekly takings). On the basis of accepted theory and experience, it is reasonable to expect that such changes will in turn be associated with significant increases in the outlet total cost variates, and significant declines in the outlet unit costs and efficiency variates (Figure V.1).[34] But Tables 5.5 and 5.6 and Figure V.1 also show how any tendency for significant differences between regional markets in each outlet cost and efficiency characteristic, which may arise through significant differences in outlet scale, are counteracted by the effect on each cost and efficiency characteristic of the tendency for the entrepreneurs of each regional market to specialise in different means of competition. The entrepreneurs of each market rationalize the extent to which prices need to be raised or lowered, the extent to which more or less personal selling and other customer services need to be offered, the extent to which ranges of goods and products need to be changed in quality or increased or decreased in number, the extent to which more or less advertising needs to be undertaken, and the extent to which more or less attractive sites or locations need to be exploited, in order to increase their scale and profits, given the competitive conditions of their regional market and the socio-economic characteristics of the households of their customers (Figure V.1).[35]

The extent to which the entrepreneurs of different regional markets specialise in low prices, increased variety of products, more service, more advertising, or better location is reflected in the extent

to which they substitute between expenditures on goods for sale, on customer services, on labour, on floor space and on advertising as outlet scale increases, and as outlet locations change from inner suburban to outer suburban markets (Figure V.1). The outcome of such substitutions as scale increases appear as the numerous irregularities marked in Table 5.5 in total and unit costs of goods sold, in total and unit labour costs, in total and unit rental, in total and unit advertising costs and in total amount outstanding on credit. The outcome of the cost substitutions also appear as the irregularities marked in Table 5.6 in the physical efficiency variates. Where these irregularities occur, substitution effects appear to outweigh the effects of scale increases and produce 'compromise' mean values (Figure V.1).

The situation which occurs with change in outlet location from inner suburban to outer suburban markets thus contrasts with the situation which occurs with change in outlet location from lower order to higher order business areas. In the latter case, the effect of an increase in outlet scale outweighs the effects of substitution between different cost categories, so that strong, predictable overall relations of a normal type can still be discerned between outlet total and unit costs and outlet scale and location.[36] In the present case, the effects of substitution are strong enough to prevent overall relations of each and every total and unit cost and efficiency variate from occuring. And, in the case of those variates which do show statistically significant overall relations with outlet location classified by regional market, the significant differences in mean values between regional markets seem as much the result of substitution as of scale effects (Tables 5.5, 5.6).

It may therefore be concluded that, in Hobart, groceries outlet location classified by regional market does show strong, close, predictable but conflicting relations with each outlet unit cost and efficiency variate through its association with outlet scale and the means of competition. These relations lend support to the hypothesized relations of outlet cost and efficiency characteristics with outlet location classified by regional market, even though they do not produce strong predictable overall relations between regional market location and each and every cost and efficiency variate.

Regional Market Variations in Combinations of Outlet Costs and Efficiency Characteristics

There is yet another way in which the hypothesized relations are supported by the relations of outlet location classified by regional market with outlet cost and efficiency characteristics. Tables 5.5 and 5.6 show that the compromises between the effects of scale and the effects of specialisation in different means of competition are responsible for significant variations between inner suburban and outer suburban markets in

the whole combination of groceries outlets costs and efficiency characteristics in Hobart. This is so even though the majority of individual costs and efficiency characteristics do not separately show statistically significant overall relations with location classified by regional market; it also seems to be so even though there was no way of objectively testing for variations between markets in the whole combination of outlet costs and efficiency characteristics.

Peripheral suburban markets. The outlets of the peripheral suburban markets (Bellerive, Glenorchy, Sandy Bay) have the highest total costs of goods for sale, of labour, of advertising and of space occupied; they probably therefore also have the highest total aggregate costs (Table 5.5). This is both a reflection of the very large scale of the peripheral suburban outlets, and of their entreprenurs' specialisation in competition for revenue in extensive ranges of goods, in personal selling and other customer services, and in spacious premises in accessible locations.

The highest values for total cost characteristics are combined with the lowest values for unit cost of goods sold,[37] but with the highest values for unit advertising cost, owing to the high degree of specialisation in advertising in competition for revenue in these markets.[38] Maximum values for total cost characteristics are also combined with either relatively high or relatively low unit labour costs and rentals according to the degree of specialisation in individual peripheral markets in competition by personal selling and/or by attractive premises.

The low ratios of costs of goods sold to takings mean that the outlets of the peripheral suburban markets may have a high economic efficiency in the acquisition of goods for sale. And because of the importance of cost of goods sold in outlet cost structures, very low unit cost of goods sold here could also mean that these outlets have a very low aggregate unit cost and a high general economic efficiency.

The outlets of the three peripheral markets also tend to have the highest physical efficiences in the use of space and labour (Table 5.6). With the exception of one mean, the mean values of the three peripheral markets rank first, second, third or fourth among the six market means for each of the four physical efficiency variates. The effect of the large scale of outlet in peripheral markets on physical efficiency thus appears to be very pronounced.

The mid suburban market. The medium-scale outlets of the mid suburban market of Moonah are characterized by moderate expenditures in each total cost category, as befits their scale (Table 5.5). However, specialisation in restricted ranges of quick-selling, low-priced, well-known brands produces a disproportionate increase in total expenditures on goods for sale in relation to the increase in takings between the outlets of the inner suburban and mid suburban markets. There is a similar disproportionate increase in land rates and taxes owing to the

use of spacious premises on large sites to assist in competition for revenue. The higher than expected values for total cost of goods sold and total cost of space occupied may possibly make aggregate total costs somewhat higher than expected in relation to outlet scale in the mid suburban market, especially since total costs of goods sold form such a large component of total aggregate costs.

The total cost characteristics of the medium-scale outlets of the mid suburban market appear to be combined with an appropriate moderate outlet unit cost of each type, and thus with moderate aggregate unit costs.[39] It is difficult to draw any conclusions from these unit costs' levels concerning the economic efficiency of the outlets in this market. For outlet output differs greatly in kind between the mid suburban and the other markets, so that output and economic efficiency comparisons between them are difficult. In the Moonah market, the service component of the output is restricted, and there is a distinctive preponderence of best-known manufacturers brands in the range of goods and products sold. For the same reason of product differentiation, it is difficult to draw any conclusions concerning the physical efficiency of the outlets in the mid suburban market. It may be remarked, however, that the outlets of the mid suburban market do record very low values for the physical efficiency variates; the outlets have the lowest mean takings per gross floor area, the lowest mean takings per manhour worked, the lowest mean takings per worker and the second lowest mean takings per square foot of selling space of all markets (Table 5.6).

Inner suburban markets. The two inner suburban markets (Central City, North Hobart) have combinations of outlet cost and efficiency characteristics which contrast with each other as well as with the costs and efficiency characteristic combinations of the outlets of the mid and peripheral suburban markets (Tables 5.5 and 5.6). The North Hobart market has the smallest scale outlets of all, and they appropriately have the lowest total costs of goods sold, the lowest total advertising costs, the lowest total labour costs and the lowest costs of space occupied. They thus seem to have the smallest aggregate total costs. However, expenditures on labour and on customer credit services are disproportionately high in relation to outlet scale, while expenditures on advertising are disproportionately low. The ratios of wages to takings are therefore disproportionately high, while the ratio of advertising expenditures to takings is disproportionately low, and indeed the lowest for all markets. These deviant total and unit costs reflect the specialisation of the outlets of the inner suburban markets in low-price, personal service operations. Because unit labour costs are particularly high while all other cost to takings ratios (with the exception of advertising) are also high, the small-scale outlets of the North Hobart market probably have the highest aggregate unit costs, the lowest general economic efficiency, and much the lowest economic efficiency in the use of labour (Table 5.5).[40]

The physical efficiency of the small-scale North Hobart outlets

is also low, despite the fact that physical efficiency in the use of labour, in contrast with economic efficiency in the use of labour, is increased by the use of small numbers of adult employees working well over a 40-hour week each (Table 5.6).

Finally, the mean values for the costs and efficiency variates for the outlets of the other inner suburban market, the Central City market, are clearly effected by the concentration of its three supermarkets and ten of its smaller outlets in the limited but highly accessible space of the Central Retail Area (Table 5.5). The outlets are on an average larger than those of the North Hobart market, but only rank fifth among the markets by their mean scale. There are appropriate increases in total costs of goods sold and total labour costs with the increase in outlet scale. However, there are disproportionately large increases in advertising costs and costs of space occupied, and corresponding disproportionately small increases in the cost of provision of customer services, for example credit services. The disproportionate increases reflect the distinctive emphasis by C.R.A. outlets on advertising for city-wide trade and on highly accessible locations in competition for revenue. Unit costs of advertising and unit rentals increase with increased scale of outlet in the Central City market under these conditions, while other unit costs decline.

Given the conflicting changes in the different types of unit and total cost, it is difficult to make deductions concerning the level of aggregate total and of aggregate unit costs. But it is probable that the outlets of the Central City market have generally low economic efficiency in comparison with the outlets of the outer suburban markets, as do the outlets of the other inner suburban market of North Hobart.[41] Low economic efficiency is combined with low physical efficiency in the use of labour in the case of these relatively small-scale outlets (Table 5.6). But low physical efficiency in the use of labour is combined with surprisingly high physical efficiency in the use of space (Table 5.6). The outlets of the Central City market have the highest mean average weekly takings per square foot of selling space and the highest average weekly takings per square foot of gross floor area. This seems to reflect the specialization of the outlets of the C.R.A. in relatively small quantities of very highly accessible and very high cost space in competition for revenue.

Variations between inner suburban and outer suburban markets in the combinations of outlet cost and efficiency characteristics thus seem to emerge from the linkages between outlet location classified by regional market, outlet scale, and the means of competition. These variations are displayed in Tables 5.5 and 5.6 by differences between the markets in the combinations of the estimated mean values for each cost and efficiency variate. However, the relations of regional market location, outlet scale and outlet cost and efficiency characteristics are not sufficiently strong enough to be reflected in parallel inter-market variations in the combinations of the mean values for any one type of groceries outlet, be it supermarket, grocery or general store (Table 5.1).[42] Moreover, the variability is high of the values for all the outlets within each market about each of their

estimated market means. The estimated coefficients of variation for each cost and efficiency variate for each market are over .30 or 30% in the majority of cases (Statistical Appendix 4 - Tables 4.10 to 4.23). This suggests that changes in the combinations of market mean values are caused by shifts between markets in the proportions of their outlets in different parts of the multi-dimensional space formed by the combined measurement scales for the size, costs and efficiency variates. The changes in the combinations of market mean values are not caused by the concentration of virtually 100% of each market's outlets at the single point in multi-dimensional space which gives their market mean for all size, costs and efficiency variates. Nevertheless, it still seems permissible to interpret the differences in the mean values of Tables 5.5 and 5.6 as evidence of general differences between the outlets of each regional market in their combination of cost and efficiency characteristics.

Costs, Efficiency and Type of Business

To summarize, the locations of outlets classified by regional market, as well as by class of business area, show strong, predictable relations with outlet cost and efficiency characteristics. The presence of these relations for Hobart's groceries outlets supports one of the main propositions of this work: "that the locations of retail establishments classified both by regional market and by class of business area become significantly interrelated in predictable ways with their own costs and efficiency characteristics." In Hobart, as groceries outlet locations change from lower to higher order business areas, and as outlet scale increases, significant differences appear in each outlet cost and efficiency characteristic. In addition, as groceries outlet locations change from inner suburban to outer suburban markets, and as outlet scale increases, significant differences appear in the combinations of outlet costs and efficiency characteristics.

Now these systematic changes in outlet location, outlet scale and other outlet characteristics could produce distinctive groups of outlets classifiable by their size and other operational characteristics. Three such groups of outlets were actually identified in a very subjective way after inspection in the field in Hobart. They were the business types, supermarkets, groceries and general stores. Statistical Appendix 4 - Tables 4.10 to 4.23 and Table 5.7 now provide objective evidence of the distinctive nature of these three groups of outlets. Statistically significant differences exist between supermarket, grocery and general store mean values for 23 scale, cost and efficiency variates. However, there are high estimated co-efficients of variation, in most cases greater than .30 or 30%, for each of the three business types in the case of each variate. This indicates that a considerable range of locational and other operational adjustments exist within each business type. Therefore, even if greater dissimilar-

ity exists between the outlets of different business types than between outlets of the same business type, the outlets of the same business type cannot be regarded as homogenous. The information in Statistical Appendix 4 - Tables 4.10 to 4.23 and in Table 5.7 thus seems to show that, in Hobart, systematic adjustments by groceries outlet entrepreneurs of their outlet location, scale and other operational characteristics result in the appearance of a wide range of combinations of groceries outlet size and operational characteristics; however these combinations are easily classifiable in the field as the three business types, supermarkets, groceries and general stores.[43] These findings are in accord with an earlier one, that supermarkets, groceries and general stores appear as the result of the systematic adjustments of outlet scale to outlet location by groceries outlet entrepreneurs.[44]

TABLE 5.7

TABLE 5.7

COSTS STRUCTURES AND EFFICIENCY CHARACTERISTICS OF SUPERMARKETS, GROCERIES AND GENERAL STORES

	MEAN AV. WKLY TKGS (SCALE) ($A)	MEAN AV. WKLY COSTS GOODS SOLD ($A)	MEAN AV. WKLY ADV. EXP. ($A)	MEAN AV. WKLY WAGES ($A)	MEAN AV. WKLY AMT. OUT ON CREDIT ($A)	MEAN AV. WKLY RENTAL ($A)	MEAN YRLY LAND RATES TAXES ($A)	MEAN RATIO COSTS GOODS SOLD TO TKGS	MEAN RATIO WAGES TO TKGS	MEAN RATIO ADV. EXP. TO TKGS ($A)	MEAN RATIO RENTAL TO TKGS	MEAN RATIO TKGS TO SELLG SPACE ($A/sq.ft.)	MEAN RATIO TKGS TO GROSS FLOOR AREA	MEAN RATIO TKGS TO TOTAL MAN HOURS ($A)	MEAN RATIO TKGS TO TOTAL WORKRS ($A)	MEAN RELA-TIVE PRICE INDEX	MEAN OVER ALL RANGE OF GOODS INDEX	EST. MN OVER ALL GROSS MARG. % TKGS a
SM	9002	7531	115	504	317	137	1200	0.84	.05	.013	.015	2.24	2.64	11.52	590	.934	660	16
GRO	1676	1400	15	105	1289	45	228	.76	.06	.007	.018	2.48	1.36	8.80	390	.966	319	24
GEN	574	428	1	27	251	19	120	.76	.05	.001	.014	1.30	1.06	2.26	290	.990	144	24

a 100 (1- Mean ratio, costs of goods sold/takings).

Source: Statistical Appendix 4 - Tables 4.1, 4.10 to 4.23, 4.24, 4.50.

INTERPRETATION OF THE GROSS RELATIONS OF LOCATION AND COSTS AND EFFICIENCY

In the description of the differences between the cost and efficiency characteristics of groceries outlets in different locations, it was not possible to avoid making some causal inferences. The differing cost and efficiency characteristics of outlets in the different classes and types of business area and in the different regional markets were both described and to some extend explained by referring to the effects on them of outlet scale and the means of competition. But it is now possible to extend the causal interpretation of the observed associations of groceries outlet location with groceries outlet costs and efficiency characteristics. Theoretical and empirical studies suggest that the associations for Hobart's groceries outlets may be interpreted as spatial and temporal two-way relations of costs and location.[45] From among many examples, Chamberlin has theorized concerning the possible interactions over space and time between retail outlet location as an aspect of product differentiation, and outlet cost structures and efficiency.[46] McClelland has also recently described the effect of location on retail outlet cost structures and efficiency in Great Britain, and the reverse effect of changing retail cost structures on location.[47]

In the present study, interpreting observed associations of outlet costs and location as two-way spatial and temporal relations helps to account further for the locational structure of groceries retailing in Hobart in 1964. The interpretation thus provides additional evidence of the support given by the 1964 data for Hobart's groceries outlets to the hypothesized relations of outlet location and outlet cost and efficiency characteristics. The interpretation is made first of the observed gross relations of outlet location by class of business area with outlet costs and efficiency, and then of the observed gross relations of outlet location by regional market with outlet costs and efficiency.

Location Classified by Class of Business Area, Costs and Efficiency

General Interpretation

The overall relations of outlet location classified by class of business area with outlet cost and efficiency characteristics may be interpreted as a reflection of two linked cause-and-effect situations. On the one hand,[48] in Hobart, an initial change over space or time in groceries outlet location from lower order (N2 to N4; J3, J4) to higher order (N1, J1, J2) business areas will be the cause of:

(i) a rise in total expenditures in all important types of cost and in aggregate total costs, with the exception that the cost of provision of customer services will decline;

(ii) a decline in outlet unit cost of goods sold, unit cost of advertising, unit labour cost, and aggregate unit cost, together with parallel rises in economic efficiency in the acquisition of goods for sale, in the use of advertising services, in the use of labour, and in overall economic efficiency;

(iii) a decline in unit rental and in the unit cost of providing customer services (except than unit rental may be highest for outlets in the regional suburban shopping centres, and the unit cost of providing customer services may be highest for the outlets in the regional suburban centre within the highest income market and in local shopping centres); parallel rises in economic efficiency in the use of space and in the provision of customer services by entrepreneurs;

(iv) substitution of expenditures on goods for sale and on advertising for expenditures on customer services and on labour involved in personal selling, except in the case of the suburban regional shopping centre in the highest income market;

(v) a rise in physical efficiency in the use of labour and space.[49]

The perception by entrepreneurs of the possibility of increased profits in locations in upper order business areas through the increases in economic and physical efficiency will then be the cause of changes in location from lower to higher order business areas. Thus, within the Hobart groceries trade, initial changes in groceries outlet locations will be the cause of changes in outlet costs and efficiency characteristics, which in turn will be the cause of other changes in outlet locations.

These arguments are in accord with evidence from cities elsewhere, especially from Chicago, where temporal changes in retail location from lower to higher order business areas have been studied in some detail by Simmons.[50] These changes in location were deemed to cause a general lowering of establishment unit costs and an increase in profits through the increase in the scale of establishment which was obtainable in upper order business areas. The increased establishment scale and profits in upper order business areas in turn would cause further changes in the location of retail outlets from lower to upper order business areas, through the attraction of new entrants to upper order business areas, and through the elimination of some of the smaller competitors in lower order business areas from the market.

On the other hand, certain sorts of initial spatial or temporal change in outlet cost and efficiency characteristics will be the cause of a change in groceries outlet location from lower to higher order business areas; and this locational change will be the cause of further changes in outlet cost and efficiency characteristics.

Firstly, a general spatial or temporal increase in any type of total cost will be the cause of changes in groceries outlet location from lower order (N2 to N4; J3, J4) to higher order (N1, J1, J2) business areas. This change in location will result from an increase in total costs because the smallest-scale marginal groceries outlets, which have the highest aggregate unit costs and which are the most likely to go out of business with any cost increase, are concentrated in lower order business areas. An increase in cost of any sort will also increase the attractiveness of upper order business areas to new entrants relative to the attractiveness of lower order ones, for in upper order business areas greatly increased outlet scale offers greater opportunity to cover cost increases, or to make better profits despite cost increases. Secondly, a general spatial or temporal decline in any type of unit cost or a general spatial or temporal rise in physical or economic efficiency will be the cause of a change in outlet location from lower order to higher order business areas. This will occur because the very large scale of outlets in upper order business areas gives entrepreneurs there a greater ability to increase total profits following any decline in unit costs than the entrepreneurs of the much smaller scale outlets possess in lower order business areas. Locations in higher order business areas will therefore become more attractive to groceries outlet entrepreneurs. These arguments are in accord with evidence from elsewhere of changes in retail outlet locations from lower to higher order business areas, following general rises in wages and other costs,[51] and following organizational changes which increase physical and economic efficiency.[52]

Now any change in outlet location from lower to higher order business areas, whether caused by a rise in one or more categories of total cost or by a rise in any sort of physical or economic efficiency, will in turn be the cause of additional changes in outlet costs and efficiency characteristics. The sorts of change which will occur were described three paragraphs ago. Thus the second series of changes which follow from certain initial changes in outlet cost and efficiency link in with the first series of changes which follow from an initial change in outlet location. Together, both series comprise the overall interrelations of groceries outlet location by class of business area with groceries outlet costs and efficiency characteristics in Hobart. The interrelations are summarized diagrammatically in Figure IV.2.

The initial change in either outlet location or in outlet cost and efficiency characteristics may be effected in turn by a change in one of the other endogenous variables, for example, by a change in outlet scale. On the other hand, the whole pattern of the spatial and temporal interaction between outlet costs and outlet location of Figure IV.2 may be dependent upon the current state of certain slowly changing exogenous variables. One exogenous variable with an obvious impact on the way outlet cost will vary with outlet scale and outlet location is the relative degree of participation by manufacturers, wholesalers and retailer co-operatives in the supply of groceries to outlets of different size.

FIGS. V.2 - V.3

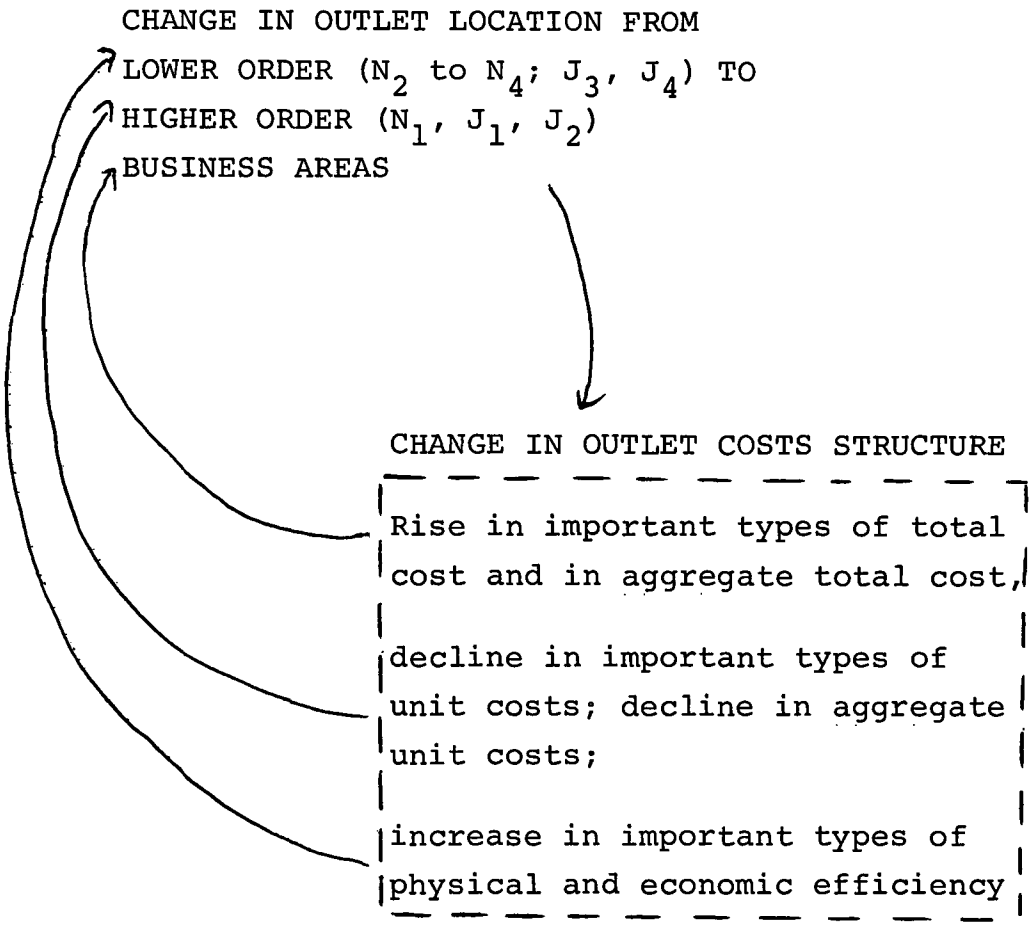


FIG. V.2 INTERDEPENDENCE OF OUTLET COSTS AND EFFICIENCY CHARACTERISTICS AND OUTLET LOCATION BY CLASS OF BUSINESS AREA, GROCERIES OUTLETS, HOBART

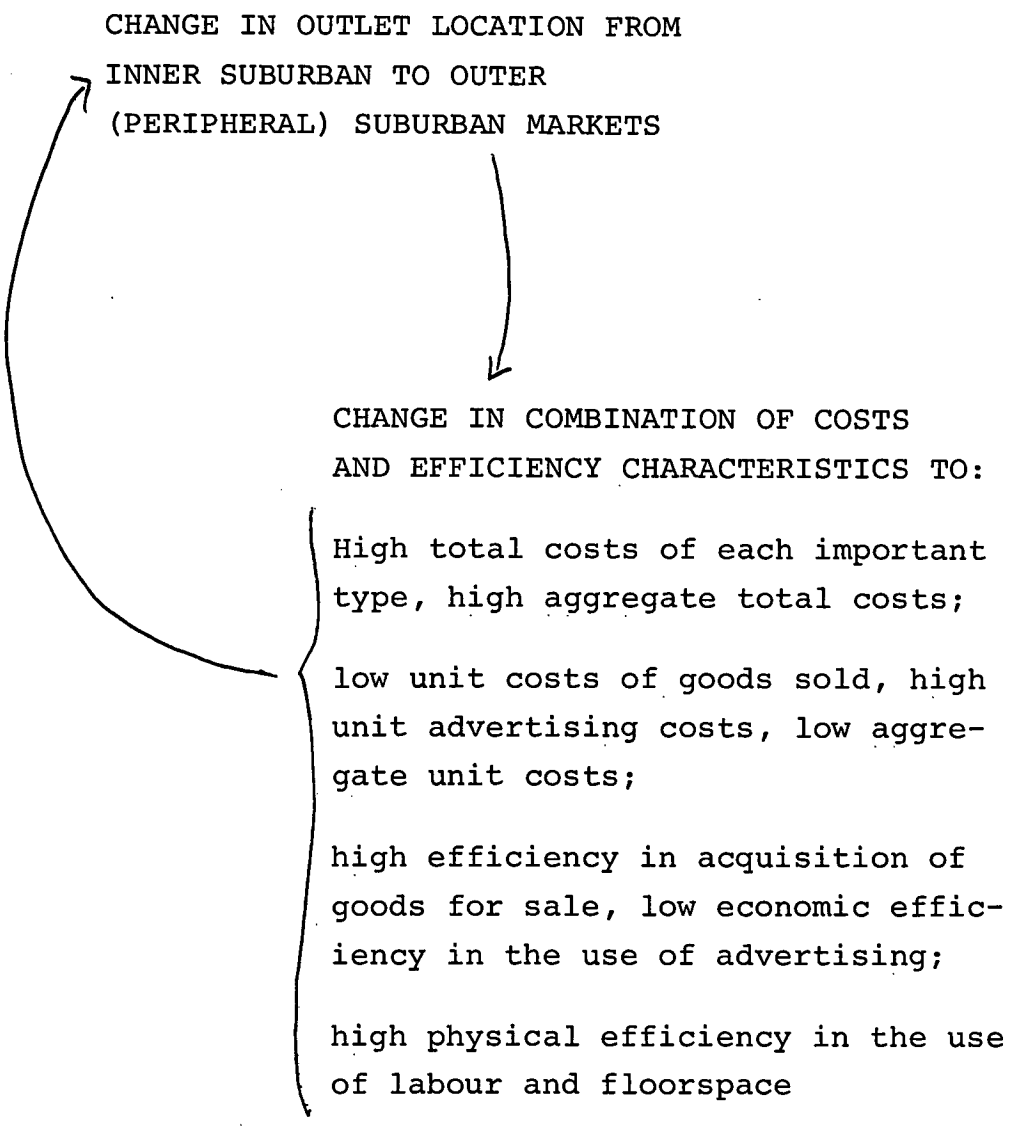


FIG. V.3 INTERDEPENDENCE OF OUTLET COSTS AND EFFICIENCY CHARACTERISTICS AND OUTLET LOCATION BY REGIONAL MARKET, GROCERIES OUTLETS, HOBART

The precise chain of effects set up by the impact of the most important exogenous and endogenous variables on costs, on efficiency or on location may be more properly discussed later when interest is centered upon in selected primary and secondary relations between outlet costs and location.

The interrelationship which is summarized in Figure IV.2 implies that the mutual relations of outlet cost and efficiency characteristics and outlet location operate in very similar ways within the hierarchy of N centres and within the hierarchy of lower J centres. This is consistent with the findings of the previous chapter that spatial or temporal changes from locations in N business areas to locations in J business areas of equivalent order will represent no significant change in location, and that no interaction with other variables will be set up.[53] It is also consistent with the findings from the data for groceries outlets in Hobart that no significant relation existed between outlet location classified by N or J business area type, and outlet cost and efficiency characteristics (Table 5.1).

Explanation of the Locational Structure of Groceries Retailing in Hobart in 1964

The overall interrelations of outlet location by class of business area and outlet cost and efficiency characteristics help account for many of the outstanding features of the locational structure of groceries retailing in Hobart in 1964. The overall interrelations of outlet location and outlet cost and efficiency characteristics add to the explanation already given in the last chapter by the mutual relations of outlet location and outlet scale, and by the mutual relations of outlet location and outlet competitive characteristics. On the basis of the relations of outlet costs and outlet location by class of business area, it seems reasonable to assume that the total profits attainable are exceptionally high for some outlets in the few upper order N and J business areas, where a handful of entrepreneurs will be the only ones who can attract and retain the highest volume of custom. Total profits will be high not only because of the effects of the simple increase in quantities sold in these locations, but also because of the increased economic and physical efficiency in selling it. The upper order N and J business areas will therefore appear very attractive to retail groceries outlet entrepreneurs. Conversely, total profits may be assumed to decline, but to remain above the minimum necessary for continued operation for outlets in the many locations in the large number of lower order business areas. The decline in profits will occur through the combined effects of declining scale of output and declining physical and economic efficiency.

Bearing these considerations in mind, the reasons for the following features of the locational structure of groceries retailing in Hobart in 1964 become apparent:[54]

(i) that the six upper order N and J centres had attracted the greatest number of outlets per centre, and had the highest proportion of business areas possessing groceries outlets;

(ii) that the highest number of groceries outlets could survive in the lower order N and J centres;

(iii) that there were only nine very large-scale outlets (super-markets) and these were exclusively located in the higher order N and J business areas;

(iv) that a larger number of middle-size outlet (groceries) could exist in all classes of business area, though predominate in the middle order business areas;

(v) that numerous small-scale outlets (general stores) could exist concentrated in lowest order business areas though represented elsewhere;

(vi) that groceries outlets of the highest order business areas were comprised predominantly of supermarkets and general stores, the largest and smallest outlets;

(vii) that medium-and small-scale outlets (groceries and general stores) were typical of middle to lower order business areas;

(viii) that small-scale outlets (general stores) were dominant in the very lowest order business areas.

Location Classified by Regional Market, and Outlet Costs and Efficiency

General Interpretation

Like the variations in groceries outlet costs and efficiency characteristics between different classes of business area, the variations between regional markets in the combinations of groceries outlets' costs and efficiency characteristics may be interpreted as reflections of two linked cause-and-effect situations. On the one hand, in Hobart, an initial change over space or time [55] in groceries outlet location from inner suburban markets to outer suburban (mid plus peripheral suburban) markets will be the cause of a change in the combinations of outlet cost and efficiency characteristics. This change will in general be away from the combination of groceries outlet cost and efficiency characteristics which is typical of inner suburban markets, towards that which is typical of peripheral suburban markets. There will accordingly be a change away from the inner suburban combination of: medium to low total costs of each type; low aggregate total cost; high unit costs of labour, space, goods for sale, and customer services but low unit cost of advertising; high aggregate unit cost; and generally low economic efficiency and low physical efficiency (except in the use of space in the C.R.A.) (Tables 5.5, 5.6). The change will be towards the peripheral suburban market combination of: high total costs of each type; high aggregate total costs; very low unit cost of goods sold, but high unit advertising cost, together with differing unit labour costs and costs of space occupied; low aggregate unit costs; high overall economic efficiency and high economic efficiency in the acquisition of goods for sale but low economic efficiency in the use of advertising; and high physical efficiency in the use of labour and floor space (Tables 5.5, 5.6).

Now groceries outlet entrepreneurs will perceive the general increases in economic and physical efficiency and thus in profits which occur as a result of change in outlet location from inner suburban to peripheral suburban markets. This in turn will be the cause of other spatial or temporal changes in groceries outlet location from inner suburban to peripheral suburban markets. Thus, in Hobart, initial changes in groceries outlet location classified by regional market will be the cause of changes in the combinations of outlet costs and efficiency characteristics, which themselves will be the cause of other changes in outlet location by regional market. These arguments are supported by evidence from cities elsewhere of the effect on retailing of the growth of cities. The possibility of large-scale retail development at the periphery causes a shift in the location of outlets from inner city to peripheral zones, which in turn causes a general increase in

the actual scale and a rise in the efficiency and profits in outlets in the city. Then a further change in the location of outlets from inner to peripheral markets occurs, as further new entrants are attracted to the periphery, and as older stores in the inner city areas close down.[56]

On the other hand, certain initial spatial or temporal changes in Hobart in the combinations of groceries outlet costs and efficiency characteristics will be the cause of changes in outlet location classified by regional market; these latter locational changes will in turn be the cause of further changes in the combinations of groceries outlet cost and efficiency characteristics. Firstly-for example, following a change in manufacturer-retailer relations accompanied by an increase in outlet scale-there may be a marked spatial or temporal increase in most of the types of total outlet cost, together with a pronounced fall in unit costs of goods sold and in aggregate unit costs, and a marked rise in outlet physical and economic efficiency. These changes will be the cause of a change in outlet location from inner suburban to peripheral suburban regional markets. The change in outlet location will occur because the attractiveness to new entrants of peripheral markets will be increased, for it is here that the highest scales of output are attainable, and higher attainable quantities sold offer greater opportunities to entrepreneurs to cover total cost increases, or to make better profits despite cost increases. Better opportunities are also available to increase total profits when economic and physical efficiency in the trade increases. On the other hand, the entrepreneurs of the smaller scale marginal groceries outlets, which are concentrated in the inner suburban markets, will have the least ability to increase expenditures and make greater profits in times of rising total costs and falling unit costs. Consequently, some of them may leave the market.

These arguments are given some support by evidence elsewhere. For example, with organizational changes in retailing which led to an increase in efficiency, large-scale retail units have developed in peripheral city areas, producing a change in retail outlet location from inner to peripheral zones.[57]

Now any change in groceries outlet location from inner to peripheral suburban markets will be the cause of other changes in the combinations of outlet costs and efficiency characteristics. The sorts of change that will occur following a change in regional market location were described four paragraphs ago. Thus the second sequence of changes which follows from an initial change in the combinations of outlets cost and efficiency characteristics links in with the first sequence of changes which follows from an initial change in locations. Together both sequences comprise the overall interrelation of outlet location classified by regional market with the combination of outlet cost and efficiency characteristics. The interrelation is summarized diagrammatically in Figure IV.3.

The initial change in either outlet location or in the combination of outlet costs and efficiency characteristics may be effected in turn by a change in another endogenous variable, for example by change in outlet scale. On the other hand, the whole pattern of change in both outlet location by regional market and outlet cost and efficiency characteristics shown in Figure IV.3 may be dependent upon the current state of certain slowly changing exogenous variables. One exogenous variable with an obvious impact on the ways in which outlet costs will vary with outlet scale and location is the relative participation by manufacturers, wholesalers and retailer co-operatives in the supply of groceries to outlets of different size. The precise chain of effects set up by the impact on outlet costs and efficiency or outlet location of the most important exogenous and endogenous variables may be more properly discussed below when selected primary and secondary relations of costs and location are the focus of attention.

Explanation of the Locational Structure of Groceries Retailing in Hobart in 1964

The overall interrelation of ~~grocery~~ groceries outlet location by regional market with the combination of outlet cost and efficiency characteristic helps account for some of the outstanding features of the locational structure of groceries retailing in Hobart in 1964. The overall interrelation of groceries outlet location with cost and efficiency adds to the explanation already given in the last chapter by the mutual relations of outlet location by regional market and outlet scale, and by the mutual relations of outlet location by regional market and outlet competitive characteristics.

Firstly, it seems reasonable to assume that total profits will be exceptionally high for at least some of the outlets of the peripheral suburban markets, where, on the average, large volumes of custom can be attracted and retained. Total profits will be high not only because of the effects of simple increases in quantity sold, but also because of increased physical and economic efficiency in selling it. The outer peripheral suburban markets, namely, Sandy Bay, Glenorchy and Bellerive, will therefore appear very attractive to retail groceries outlet entrepreneurs. However, within these markets, attempts to take advantage of possible increases in scale will place restrictions on the number of groceries outlets in each market.

On the other hand, total profits may be assumed to decline but to remain above the minimum necessary for continued operation for outlets in the inner city markets. This will occur through the combined effect of declining attainable scales of output, and rising aggregate unit costs. But with lower outputs and profit, more stores may be able to exist in the inner suburban markets.

Bearing all these considerations in mind, the following features of the locational structure of groceries retailing in Hobart in 1964 are easily explicable:[58]

(i) that there were relatively a larger number of outlets in inner suburban markets, and that these were characteristically small-scale (general stores and groceries);

(ii) that there were relatively fewer outlets in the outer suburban markets, and that, especially for the Sandy Bay and Glenorchy markets, these outlets were composed of higher proportions of large-scale supermarkets and groceries.

PRIMARY AND SECONDARY RELATIONS— LOCATION, COSTS AND EFFICIENCY

The observed gross interrelations between outlet location and outlet costs and efficiency characteristics help account for the locational structure of groceries retailing in Hobart in 1964. They also give considerable support to the first and major hypothesis of this work: "that the locations of the outlets of a retail trade become significantly interrelated in predictable ways with many other of their own characteristics, including their cost and efficiency characteristics." But a more detailed analysis remains to be made of the principal ways in which the observed gross interrelations may be effected through the impact of other exogenous or endogenous variables. That is, a more detailed analysis remains to be made of the important primary and secondary linkages of outlet location and outlet cost and efficiency characteristics.[59]

Such an analysis will give still further support to the first and major hypothesis of this work. For it will help to show that not only may the hypothesis be used to identify the more important variables; (such as outlet costs and efficiency) which are associated with an observed pattern of retail location, it may also be used to identify the precise pattern of cause and effect connections between the observed retail locations and such variables. In addition, the more detailed analysis will give added substance to the explanation of the locational structure of Hobart's groceries retailing which has just been provided in the interpretation of the overall relations of cost and location.

Now it has already been found that outlet scale and the means of competition are probably the most important endogenous variables which impinge on the overall associations of outlet location with outlet cost and efficiency characteristics.[60] A preliminary examination has already been made of the influence on the gross relations of location and costs and efficiency of increasing outlet scale, and of the changes in emphasis on different means of competition which are reflected in substitution between different types of cost. However, the pattern of the secondary linkages which connects scale and the means of competition with cost, efficiency and location can itself be shown to be dependent upon the current state of a most important exogenous variable. This variable is the nature of the organizational structure of the distribution of groceries, that is, the relative importance of wholesalers, manufacturers and retailer co-operatives in the supply of groceries for resale. Attention is now concentrated therefore on an analysis for Hobart's groceries outlets of the important primary and secondary relations of costs, efficiency and location, in the context of the current organizational structure of distribution.

Costs, Efficiency, Location, and the Organizational Structure of Distribution

The Organization of Groceries Distribution in Hobart

In Hobart, the organizational structure of groceries distribution underwent a change between 1955 and 1960. At the retail level, local and national chains, major local single-store 'independents' and retailer voluntary co-operatives became the influential organizations behind the purchase, assembling and resale of goods by the entrepreneurs of individual groceries outlets.

During the fifties, the national grocery chain of Moran and Cato Ltd., expanded its activities at its central city site in Hobart and as late as 1963 the firm opened a new store in Moonah. In addition, between 1955 and 1960, a local chain of five supermarkets was established by another local firm, The Purity Co. Over the same period, leading old-established one-store family businesses expanded into growing independent private companies.[61] Finally, the retailer voluntary co-operative organizations of Foodstuffs (Hobart) Pty. Ltd., and Wholesalers (Tasmania) Pty. Ltd., contemporaneously entered a period of rapid growth in membership.[62] The aims of both these organizations were "simply to help the independent storekeeper,"[63] principally by co-operative group buying and advertising. However, "a store had to reach a certain acceptable standard in appearance and organization," and had to meet entrance fees, to become a member. Also, large-scale outlets which were members of national chains could not become co-operative group members, and large-scale outlets which were members of a local chain did not because they "were better off on their own". The increased membership in Hobart of the two co-operative groups was thus restricted to flourishing medium-scale concerns.[64]

It is true that the co-operative groups, the major independents and the chains continued to expand in Hobart between 1960 and the survey date of 1964. However, it is clear that it was prior to 1960 that the break occurred away from independently-operated, single-store grocery firms, to the grouping of outlets into chains, large independents, 'the groups' and 'the rest,' for the purposes of buying and selling retail goods. By 1960, the new state of the organizational structure of groceries distribution had emerged, and "the future battle lines were clear" for Hobart groceries retailers, even though the two major national groceries chains, Coles and Woolworths, had not yet entered the Hobart market.

The change in organization at the retailer level meant that the volume of goods acquired for sale by retailers from traditional wholesalers in Hobart fell sharply between 1955 and 1960.[65] The influence of wholesalers on the operation of retail groceries outlets rapidly declined. For members of national and

local chains, and of the voluntary co-operative buying organizations obtained their goods from their own centralized buying authority which dealt with manufacturers. Similarly, the major local independents 'dealt direct.'

The stimulus for retailers to by-pass the wholesaler appears to have come as much from the manufacturers as from the retailers. For over the period 1955 to 1960, Australian groceries manufacturers abolished their preferential wholesaler's discount, giving active encouragement to retailers to act as their own buyers and to co-operate with manufacturers for the purposes of advertising their goods. The major incentive for the manufacturers appeared to be that direct contact with retailers was thought to give increased control to manufacturers over the production and marketing of their product, and thus over their sales, market shares and profits in an expanding economy and in aggressively competitive markets.[66]

But direct manufacturer/retailer relations proved economically justifiable only where the costs involved in maintaining the contact were not too great, that is, where purchase and advertising deals could be few and on a large scale. Thus the rapid evolution of chains, large independents and retailer co-operatives followed to provide the required scale of purchase and advertising deal. However, these retail buying organizations then developed considerable bargaining power and skill vis-a-vis the competing manufacturers who wished to supply them with, and receive promotional assistance for, any particular groceries product. In order to gain the custom of the large retail independents, the retail chains and the retail co-operative groups, manufacturers started to offer additional services. For example, they offered help with the management of their section of retail stores by keeping sales records, or more commonly by providing staff to keep shelves stocked and to design and run in-store promotions, particularly of new products. In particular they increased assistance with the choice, purchase, stocking and advertisement of 'specials,' that is, the large quantities of selected high demand goods which retailers offer for a short period at very low prices to attract custom. Thus the direct ties between retailer and manufacturer rapidly increased in number and became stronger.

The changes between 1955 and 1960 in the organizational structure of distribution in Hobart were very similar in nature to those which occurred in groceries retailing and other kinds of retailing in most western societies.[67] Since 1960 therefore, the pattern of groceries outlet operation in Hobart can be expected to bear some resemblance to the pattern of retail outlet operation under similar conditions elsewhere. Because of the special impact everywhere of the new organizational structure of distribution on the costs of goods for sale and the costs of advertising, this expectation applies particularly to the current pattern of relations of groceries outlet costs and efficiency characteristics with the means of competition, with outlet scale, with outlet competitive characteristics and with outlet location. Drawing on experience elsewhere, therefore, the

precise ways in which the current organizational structure of groceries distribution effects the pattern in Hobart may be suggested, and the important primary and secondary linkages of groceries outlet costs and efficiency characteristics with outlet location may be described.

Influence of Size of Buying Organization and Size of Outlet on Outlet Costs

The major effect of the current organizational structure of groceries distribution in Hobart as elsewhere is to provide greater opportunities for the entrepreneurs of many individual retail outlets to increase their profits. Groceries outlet entrepreneurs have increased opportunities to buy their goods for sale at lower prices, to successfully use 'specials,' to take advantage of more lower cost advertising and promotion of their goods, and to decrease the unit labour cost involved in stocking shelves and in introducing new goods in their store. But the opportunities to do these things will vary for different entrepreneurs. These opportunities are limited by the scale of output of the entrepreneur's establishment, and by the size of the larger buying organization from which the entrepreneur obtains his goods. The entrepreneurs of the largest scale outlets which belong to large national or local chains are able to obtain goods for sale at the lowest prices, to receive the greatest amount of help with advertising expenditures, to get the best deals on 'specials,' and to obtain the greatest number of 'fringe benefits' through their relations with manufacuters. In contrast, the smallest scale independent outlets, which are excluded from membership of the co-operative retail groups, obtain their goods at the highest delivered price from relatively small traditional wholesalers, and receive little assistance in other ways from their supplier.[68]

The size of the buying organization from which the groceries retailer obtains his goods is particularly important for his success because manufacturers' official discounts on purchase prices, and their official assistance with advertising and in other ways, varies significantly with the quantity of their goods purchased. Manufacturers' discounts and other offers may also be unofficially increased if the buying organizations' power is great enough, that is, if the organization is of sufficient scale or prestige, as in the case of the national chains, or in the case of the leading local large-scale old-established independents. Tables 5.8(i) and 5.8(ii) give some indication of the ways the Australian groceries manufacturers' bulk purchase discounts and promotional allowances increase with the quantity purchased by the buying organization. As a result of their scale of purchase, the different types of buying organization probably rank in the following way from the least to greatest by price paid for goods for resale: the national retail chain, the local retail chain, the co-operative group, the old-established large independent one- or two-store concern, the traditional wholesaler. The degree to which manufacturers offer assistance with retail advertising and promotion and in the supply of 'specials' also may decline in the same way from the national retail chain to the traditional wholesaler.

The provision of labour to help with stocking shelves and to run in-store promotions in individual outlets seems to be confined to members of national and local chains and old established large-scale independents.

The extent to which the major types of buying organisations obtain lower prices for the goods they buy, and more and cheaper advertising and promotions, and other concessions from manufacturers, clearly places a theoretical upper limit on the extent to which costs can be lowered and sales and profits increased for the individual groceries outlets which they supply. But the extent to which the advantages gained are actually passed on to individual retailers, and their profits, also depend upon the nature of the buying organization with which they are affiliated.

The small traditional wholesaler can pass on his minimal price reductions and other advantages to the least degree, for his goods and services will be priced for the retailer with a wholesaler's gross margin to cover both operating costs and net profit. The buying organizations of the large-scale national and local chains, and of the medium-scale co-operative groups do not have to make a profit on the transmission of purchased goods and services to the outlets which they supply. In addition, they may have lower operating costs to cover than the wholesaler because of their larger scale and their resultant greater economic and physical efficiency in the assembly and handling of goods, and in the organization of buying and negotiating personnel.[69] This may especially be so in the case of the national chain. Finally, the single-enterprise independent who deals direct with the manufacturer will retain for himself the whole of his purchase price and other concessions. From this, it seems probable that the individual groceries outlets associated with the large national chains may have the greatest opportunities for reduced costs and increased sales, followed by the outlets of the local chain and the large-scale independent, then closely by the members of the co-operative groups, and finally, by those outlets supplied by the traditional wholesaler. Some evidence of the purchase price advantages for individual groceries outlets dealing with co-operative groups as against traditional wholesalers, is given in Table 5.9.

The scale of the individual groceries outlet will also be important in determining the exact degree to which purchase price and other concessions are finally passed on by the major buying organizations. There is evidence that both co-operative groups and wholesalers offer discounts to entrepreneurs buying from them according to the quantity of goods they purchase (Table 5.10.(ii)), and similarly vary the fee charged for any centralized advertising services. In addition, the voluntary co-operative organizations commonly receive promotional discounts from manufacturers which vary with the quantity of goods they purchase (Table 5.10.(ii)), and which they seem to deduct from the list prices of goods supplied to members with the largest deductions going to the largest members. It is also possible, but there is no real evidence, that national chains cost the goods for sale by their smaller branches at a higher level than that used for the larger branches, and that special assistance from manufacturers with promotions, display and advertising is concentrated in their larger units.[70]

TABLES 5.8 - 5.10

TABLE 5.8.(i)

MANUFACTURERS' NORMAL TRADING TERMS FOR SELECTED GROCERIES, AS AT 22.2.65.

MANUFACTURER'S BRAND NAME	GOOD	QUANTITY DISCOUNTS: SHOWN BY MANUFACTURER'S LISTED PRICES FOR DIFFERENT QUANTITIES PURCHASED (OLD CURRENCY)						ADDITIONAL COMMENTS
BETTY SYDNEY	TOPPING WHIP	Q:	1-3 doz	3-6 doz	6-12 doz	sm chains sm w'salers	lg chains " w'salers 50 doz buyers	Prices FIS Hobart
		Price per doz	18/-	18/- less 5%= 17/1	18/- less 10%= 16/3	18/- less 12½%=15/9	18/- less 15%=15/4	
						with central w'house less a further 2½% = 15/4	= 14/11	
DEWCRISP	PEAS (16 oz)	Q: (Code)	List A	List B	List C	List D	List F	List G	Prices quoted are FIS Melbourne; freight is added to obtain final Hobart prices
		Price	15/6	15/1	15/-	14/9	14/4	14/-	
HEINZ	SOUPS (all flavours)	Q:		250 cases		500 cases			Prices FIS Hobart; 250 cases - further discount of 3/4%; 500 cases - further discount of 1½% obtainable
	" 4½ oz	Pr/Case		17/-		16/10			
	" 10 oz	"		29/5		29/2			
	" 16 oz	"		38/9		38/5			
	" Tomato	"		52/0		51/7			
	SPAGHETTI 10 oz	"		35/8		35/5			
	TOMATO SAUCE 13 oz	"		41/1		40/9			
	PEAS (TINNED) 15½ oz	"		37/5		37/1			
	BABY FOOD: Junior Dinner	"		25/4		25/2			
KRAFT	JAM	Q: (Code)	List A	List B	List C	List D	List F	List G	Prices FIS Hobart; list includes suggested metropolitan retail prices
	Apple Jelly	Pr/doz	25/9	25/1	25/-	24/6	23/10	23/2	
	Raspberry	Pr/doz	32/10	32/-	31/10	31/2	30/4	29/7	
	Swt Or. Marm	Pr/doz	34/-	23/5	23/3	22/10	22/2	21/7	
	MEAT (TINNED) Stk & Ons 16oz	Pr/2 doz	42/2	41/1	40/11	40/1	39/0	37/11	
	Cornd Beef12 oz	Pr/2 doz	35/7	34/8	34/6	33/10	32/11	32/-	

(Cont.)

TABLE 5.8.(i) (Cont.)

MANUFACTURERS' NORMAL TRADING TERMS FOR SELECTED GROCERIES, AS AT 22.2.65.

MANUFACTURER'S BRAND NAME	GOOD	QUANTITY DISCOUNTS: SHOWN BY MANUFACTURER'S LISTED PRICES FOR DIFFERENT QUANTITIES PURCHASED (OLD CURRENCY)					ADDITIONAL COMMENTS
NESTLES		(Details could be obtained for Nestles Group I or smaller buyers only)					Prices FIS Melbourne, freight must be added to get Hobart prices, list includes suggested retail prices
		Q:	5 case (less 5%)		10 case (less 7½%)	20 case (less 10%)	
	C'DENSED MILK-14 oz	Pr/tin	1/9½		1/9	1/8½	
	EVAP. MILK - 14 oz	Pr/tin	1/6½		1/6	1/5½	
ROSELLA		Q:	1-3conts	3-9 conts	10-39 cnts	40-69cnts 70 cnts+	Prices FIS Melbourne, freight must be added to get Hobart prices; 7 day settlement further 3% discount; 30 day settlement further 2½% discount
	TOMATO SAUCE - 26 oz	Pr/doz	42/3	41/2	40/2	39/7 39/1	
	WORCEST. " - 10 oz	Pr/2 doz	25/11	25/11	25/3	24/7 24/-	
	SOUPS (TINNED) - All varieties 16oz	Pr/2 doz	20/1	19/7	19/1	18/10 18/7	
SWIFT	MEATS (TINNED)	Q:	under 48 doz.		48 doz. and over		Prices CIF all ports, further discount 2½% for 30 day settlement and 30% for 7 day settlement.
	Luncheon Beef - 12 oz	Pr/doz	34/6		29/9		
	Tongues - 12 oz	Pr/doz	39/6		34/5		
	Camp Pie (Sq.)- 12 oz	Pr/doz	23/9		20/9		

Sources: Correspondence with manufacturers in the files of Wholesalers (Tas.) Pty. Ltd., and F. W. Heritage and Co., Hobart, February, 1965.

TABLE 5.8.(ii)

EXTRACTS FROM CORRESPONDENCE SHOWING TYPICAL SPECIAL ADVERTISING AND PROMOTIONAL DISCOUNTS OFFERED BY MANUFACTURERS: DISCOUNTS ACCORDING TO QUANTITY OF PROMOTED GOOD PURCHASED

"From Campbells Kia-Ora Jan. 4th, 1965

To: Groups, Chains, Wholesalers

Re: KIA-ORA BEANS AND BEEF

Many of our direct customers have indicated they prefer promotional payments commensurate with the amount of support they are able to put behind a product when they feature it.

Therefore, in lieu of cooperative advertising, we offer a promotional allowance on Kia-Ora 16 oz. Beans and Beef for retail promotion during the period February 2nd to February 28th, 1965.

When you feature Beans and Beef in a retail advertising promotion of the type you normally run, an allowance of ... 3/- per carton will be rebated on all stock purchased to support that promotion. The allowance will be paid by cheque after confirmation of a promotion is received.

Your Campbell salesman will be pleased to arrange a promotion of Beans and Beef with you during the period listed above."

Source: Correspondence in the files of Wholesalers (Tas.) Pty. Ltd., Hobart, February, 1965.

TABLE 5.9

COMPARATIVE SUPPLY PRICES OF SELECTED GOODS TO RETAIL ESTABLISHMENTS IN THE HOBART MARKET FROM WHOLESALERS AND COOPERATIVE BUYING ORGANISATIONS, AS AT THE LAST WEEK IN FEBRUARY, 1965

PRODUCT AND GOOD	SUPPLY PRICES[a] Burgess Bros P/L (cash self-service section)			Burgess Bros P/L (charge section)			Heritage Pty Ltd			Foodstuffs (Hobt.) P/L			Wholesalers (Tas) P/L		
	doz	unit (d)	relative[b]	doz	unit (d)	relative[b]	doz	unit (d)	relative[b]	doz	unit (d)	relative[b]	doz	unit (d)	relative[b]
BABY FOODS															
Heinz (tinned) 7 oz	13/8	13.67	1.12	14/6	14.50	1.18	14/4	14.33	1.17	13/1	13.08	1.07	12/3	12.25	1.00
Nestles (bttld) 4 oz	-	-	-	-	-	-	9/6	9.50	1.06	8/8	8.67	.96	9/-	9.00	1.00
CEREAL PRODUCTS															
Heinz (in tom sce) 16oz	18/11	18.82	1.07	19/11	19.92	1.12	20/3	20.25	1.14	17/3	17.25	.97	17/9	17.75	1.00
TINNED SPAGHETTI															
KiaOra (in tom sce) 16 oz	16/9	16.75	1.04	17/8	17.67	1.10	17/9	17.75	1.10	16/5	16.42	1.02	16/1	16.08	1.00
DAIRY PRODUCTS - MARGARINES															
Golden Pastures Table 16 oz	-	43.00	1.04	-	43.00	1.04	-	43.00	1.04	-	40.00	.97	-	41.25	1.00
Marville Ckg 16 oz	-	26.75	1.09	-	26.75	1.09	-	28.75	1.17	-	26.00	1.06	-	24.50	1.00
MILKS: EVAPORATED AND CONDENSED															
Nestles Sw Cn 14 oz	22/8	22.67	1.07	23/6	23.50	1.11	23/3	23.25	1.09	20/10	20.83	.98	21/3	21.25	1.00
Carnation Evp 14.5 oz	17/6	17.50	1.08	18/7	18.58	1.14	19/0	18.00	1.17	16/7	16.58	1.02	16/4	16.25	1.00
DRINKS - TEA															
Bushells 16 oz	-	74.25	1.05	-	75.50	1.06	-	75.25	1.02	-	72.50	1.02	-	71.00	1.00
Liptons 16 oz	-	74.25	1.03	-	75.25	1.05	-	75.25	1.05	-	71.00	.99	-	72.00	1.00
4 Square 16 oz	-	-	-	-	-	-	-	-	-	-	67.50	-	-	-	-
FISH - TINNED HERRINGS															
Maconochies (Fresh) 14 oz	28/6	28.50	1.17	30/3	30.25	1.24	29/9	29.75	1.22	27/-	27.00	1.11	24/5	24.42	1.00
FRUITS - DRIED															
Anchor Raisns 16 oz	-	-	-	-	-	-	-	-	-	28/11	28.92	1.07	27/-	27.00	1.00
Tom Piper Mxd 10 oz	25/8	25.67	1.07	27/6	27.50	1.15	27/6	27.50	1.15	24/0	24.00	1.00	23/11	23.92	1.00
B.B. Raisins 16 oz	30/0	30.00	1.11	30/6	30.50	1.13	-	-	-	-	-	-	27/-	27.00	1.00

(Cont.)

TABLE 5.9 (Cont.)

COMPARATIVE SUPPLY PRICES OF SELECTED GOODS TO RETAIL ESTABLISHMENTS IN THE HOBART MARKET FROM WHOLESALERS AND COOPERATIVE BUYING ORGANISATIONS, AS AT THE LAST WEEK IN FEBRUARY, 1965

PRODUCT AND GOOD	SUPPLY PRICES[a]														
	Burgess Bros P/L (cash self-service section)			Burgess Bros P/L (charge section)			Heritage Pty. Ltd.			Foodstuffs (Hobt.) P/L			Wholesalers (Tas) P/L		
	doz	unit (d)	relative[b]	doz	unit (d)	relative[b]	doz	unit (d)	relative[b]	doz	unit (d)	relative[b]	doz	unit (d)	relative[b]
MEATS - TINNED															
Imperial - Vegs. & Sags. 16 oz	28/8	28.67	1.06	30/9	30.75	1.13	30/9*	30.75*	1.13	28/3	28.25	1.04	27/2	27.17	1.00
Imperial - Slicing Beef 12 oz	35/9	35.75	1.11	37/9	37.75	1.17	38/8*	38.67*	1.20	-	-	-	32/2	32.17	1.00
Kraft St & On 12 oz	34/8	34.67	1.08	36/-	36.00	1.11	35/7	35.59	1.10	33/1	33.08	1.03	32/3	32.25	1.00
SAUCES - BOTTLED															
IXL Tomato 13 fl oz	21/6	21.60	1.12	23/0	23.00	1.19	23/0	23.00	1.19	20/10	20.83	1.08	19/3	19.25	1.00
Rosella " 26 fl oz	44/0	44.00	1.09	46/3	46.25	1.15	47/6	47.5	1.18	42/6	42.50	1.06	40/4	40.25	1.00
SOUPS - TINNED															
Campbells 10.5 oz	-	-	-	-	-	-	18/9	18.75	1.12	17/6	17.50	1.05	16/8	16.67	1.00
KiaOra 16 oz	15/4	15.25	1.07	16/0	16.00	1.12	15/9	15.75	1.11	14/6	14.50	1.02	14/3	14.25	1.00
Rosella 8 oz	12/9	12.75	1.06	13/4	13.67	1.15	12/8	12.67	1.06	13/-	13.00	1.09	11/11	11.92	1.00
SPREAD - JAMS															
Cottees Swt OM 16 oz	27/-	27.00	1.04	28/3	28.25	1.09				26/9	26.75	1.03	26/-	26.00	1.00
IXL Plum varts. 24 oz	26/3	26.25	1.06	28/-	28.00	1.13	=	=	=	25/6	25.50	1.03	24/9	24.75	1.00
SWEETENINGS - SUGAR (GRANULATED)															
C.S.R. 2 lb.	-	21.19	1.03	-	22.16	1.07	-	22.00	1.07	-	-	-	-	20.63	1.00
VEGETABLES - TINNED (PEAS)															
Edgells 7.75 oz	12/8	12.67	1.07	13/0	13.00	1.10	13/9	13.75	1.16	12/2	12.17	1.03	11/10	11/83	1.00
IXL 16 oz	20/8	20.67	1.09	22/0	22.00	1.16	22/-	22.00	1.16	20/-	20.00	1.05	19/-	19.00	1.00

SOURCE OF SUPPLY	MEAN PRICE RELATIVE
Burgess Bros Pty. Ltd.	
Cash section	1.07
Charge section	1.12

SOURCE OF SUPPLY	MEAN PRICE RELATIVE
Heritages Pty. Ltd.	1.13
Foodstuffs (Hobt.) Pty. Ltd.	1.03
Wholesalers (Tas.) Pty. Ltd.	1.00

(Cont.)

TABLE 5.9 (Cont.)

COMPARATIVE SUPPLY PRICES OF SELECTED GOODS TO RETAIL ESTABLISHMENTS IN THE HOBART MARKET FROM WHOLESALERS AND CO-OPERATIVE BUYING ORGANISATIONS, AS AT THE LAST WEEK IN FEBRUARY, 1965

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a Prices are quoted in the old currency and were current at the last week in February, 1965. In the case of Heritages Pty. Ltd. and Burgess Bros. Pty. Ltd. (charge section) they include a margin for wholesaling costs, delivery, and credit. In the case of Burgess Bros. Pty. Ltd. (cash self-service section) they include a margin for wholesaling costs only; in the case of Wholesalers (Tas.) Pty. Ltd., and Foodstuffs Pty. Ltd., none of these margins are included. All prices cited are landed cost plus freight (where this is charged) and net of cash settlement, bulk purchase and other manufacturer discounts.

b Price per unit of good relative to the price per unit charged for that good by Wholesalers (Tas.) Pty. Ltd.

* Items upon which Heritages Pty. Ltd. allow a 2½% cash settlement discount if payment is received within 30 days of purchase.

Sources: Price Lists of Wholesalers (Tas.) Pty. Ltd., Foodstuffs (Hobt.) Pty. Ltd., and Heritages Pty. Ltd.; Mr. T. Butterworth, Burgess Bros. Pty. Ltd.

TABLE 5.10

SLIDING SERVICE FEE SCALES OF HOBART COOPERATIVE BUYING GROUPS, AS AT JANUARY, 1965

FOODSTUFFS (HOBART) PTY. LTD.

Service Fee Scale to Operate as from 1st July, 1964.

PURCHASES	GROUP CHARGE
Up to £ 750 per month	3 3/4%
£ 750 to £ 1000 per month	3 1/2%
£ 1000 to £ 1600 " "	3 1/4%
£ 1600 to £ 2000 " "	2 1/2%
£ 2000 to £ 3000 " "	2%
£ 3000 to £ 4000 " "	1 3/4%
Over £ 4000 " "	1 1/4%
Over £ 5000 " "	1%

WHOLESALERS (TAS.) PTY. LTD. SERVICE FEE SCALE

Where Monthly Purchases Are	Maximum	Less Cash Discount	Net Fee
Under £ 300	6%	1%	5%
Are 300	5 3/4%	1%	4 3/4%
" 400	5 1/2%	1%	4 1/2%
" 500	5 1/4%	1%	4 1/4%
" 600	5%	1%	4%
" 700	4 3/4%	1%	3 3/4%
" 800	4 1/2%	1%	3 1/2%
" 1000	4 1/4%	1%	3 1/4%
" 1200	4%	1%	3%
" 1400	3 3/4%	1%	2 3/4%
" 1600	3 1/2%	1%	2 1/2%
" 1800	3 1/4%	1%	2 1/4%
" 2000	3%	1%	2%
" 2500	2 3/4%	1%	1 3/4%
" 3000	2 1/2%	1%	1 1/2%
" 4000	2 3/8%	1%	1 3/8%
" 5000	2 1/4%	1%	1 1/4%

Note 1 The monthly service fee will be calculated at the end of each month and a Debit for same will be included on your monthly statement.

Note 2 No service fee will be charged on Sugar, Tobacco, Cigarettes or Paper Bags. In these instances the price shown will be the finished cost. Such purchases will, however, be included to establish your service fee rate.

Note 3 All Special Discount Offers made by manufacturers will be deducted from the wholesale cost as listed in the price order book.

Note 4 The charges for service fees are an expense item and as such are tax deductable.

Note 5 The 1% cash discount is allowed on all payments received within the period marked on your invoice summary slip forwarded each week with your invoices.

Secondary Linkages: Outlet Costs and Efficiency with Outlet Scale, Outlet Price and Non-Price Offers, and Outlet Competitive Characteristics

Now the scale of a groceries outlet is itself connected with the type of larger buying organization with which it is affiliated. National and local chains and independent private family companies have increased capital for investment in their outlets, and their member outlets are consequently the largest in the trade.[71] On the other hand, membership of voluntary co-operative groups is limited to medium-scale independents, while the wholesalers are left supplying the smaller scale concerns.

Given the present organizational structure of groceries distribution, therefore, an increase in groceries outlet scale will have a direct and exceptionally strong influence on outlet cost structures and economic efficiency. For not only will there by the normal sorts of increasing 'internal economies' available as size of outlet increases. There will also be increasing 'external economies' as the probability increases of a change in the nature of the organization which controls the purchase and promotion of goods for individual outlets. As outlet scale increases, the probability increases of a change in buying organization from the wholesaler, to the co-operative group, to the large independent private family company, and then to the local chain or the national chain. Also, with increase in outlet scale, there may be still further 'external economies' which arise from the better position of the larger scale outlet within any particular form of buying organization to which it belongs.

The 'external economies' will chiefly take the form of savings in the most important type of groceries outlet cost, cost of goods sold, and also in another important cost category, cost of advertising, promotions and displays. But both these cost categories are closely related to two of the more important means of competition, namely ranges of goods and products stocked, and quantity and variety of advertising services employed. Because of this, the decline in unit costs of goods sold and advertising which are set up by increasing scale, will give increased opportunities to groceries outlet entrepreneurs to emphasise ranges of goods and advertising at the expense of other means of competition, if they so desire. A third means of competition, price, will also be affected. Prices on some goods will be reduced through the need to run cut-price 'specials' in order to secure some of the manufacturers' special bulk purchase and promotional discounts. And entrepreneurs will have greater flexibility in pricing remaining goods, for prices may be increased to compensate for reductions on 'specials,' retained at their current level, or reduced to pass on the general savings in unit advertising costs and costs of goods sold which arise through bulk deals. The availability of more lower cost advertising may also permit further successful price reductions over a wide range of goods through the cutting of retailer gross margins and the heavy advertisment of exceptionally low prices to attract large volumes of custom.[72]

The sort of external economies of scale which are gained with an increase in retail grocery outlet scale thus have a direct influence on the means of competition. They will give retailers greater flexibility in the ways they can use different means of competition, though they will always require price reductions on at least very high demand 'special' lines. In turn, the entrepreneur's freedom to emphasise different price and non-price offers will lead to substitutions between different types of costs, for example, substitutions of expenditures on goods for sale and advertising for customer credit. These substitutions will be directed towards yet another increase in scale and in profits.

Thus, under the current organizational structure of distribution, any increases in groceries outlet scale will provide for greatly increased profits through their propagation of very rapidly declining unit costs of goods sold and advertising and thereby the more advantageous use of means of competition.

The changes in outlet unit costs and efficiency which follow an increase in outlet scale will have an impact in another direction. The fact that they provide for increased flexibility in the use of the means of competition will enable entrepreneurs to be more vigorously competitive, to compete in a greater variety of ways with their major rivals, and to be more sensitive to their competitors' actions. Changes in outlet costs and efficiency will therefore lead directly to increasingly aggressive and increasingly oligopolistic behaviour in selling.[73] This will be the more marked as outlets with lowered costs and increased scale are generally affiliated with larger organizations, such as the national and local chains and co-operative groups, which have policies of encouraging vigorous competition between their members and the members of other organizations.

In turn, as retail groceries outlet entrepreneurs become more aggressive in competition, and realize the advantages acquired through 'direct dealing' with manufacturers, there will be increasing pressure on their buying and advertising organizations to expand and to compete to obtain still better deals. Getting lowered advertising costs and costs of goods sold will itself become an important means of competition for individual entrepreneurs.[74] This will lead to increasingly vigorous monopsonistic behaviour in buying, for the few powerful vigorously competitive buying organizations with which individual retailers are affiliated will face the few large manufacturers who supply any single groceries product.[75] Any better deals obtained by the buying organizations will permit further lowered costs, still greater flexibility in the use of the means of competition, still more aggressive competition and the possibility of still further increases in scale and profits for at least some individual outlet entrepreneurs.

FIG. V.4

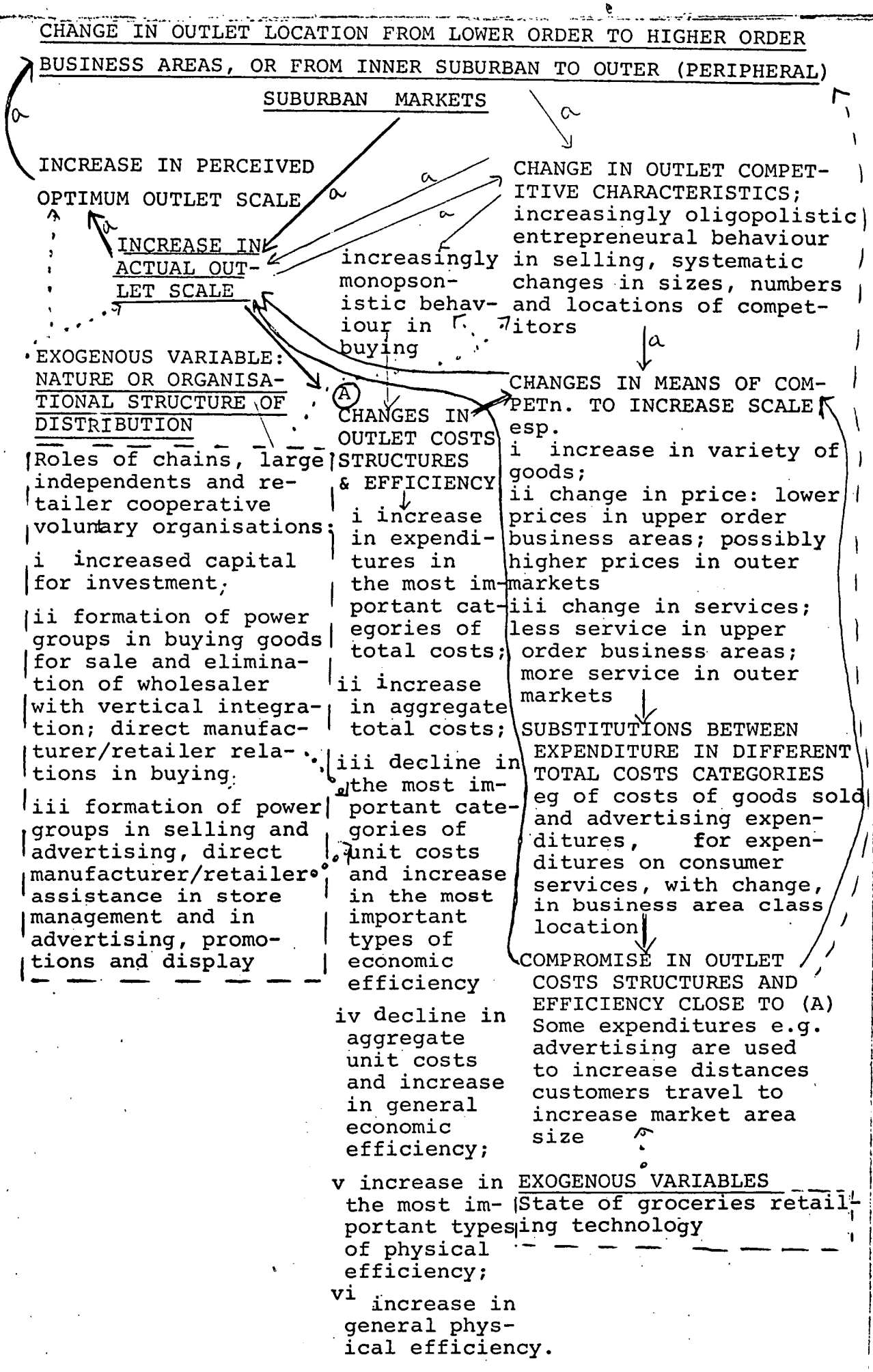


FIG. V.4 SELECTED PRIMARY AND SECONDARY LINKAGES MAKING UP THE GROSS RELATIONS OF OUTLET LOCATION AND OUTLET COSTS AND EFFICIENCY CHARACTERISTICS

FIG. V.4 (Cont.)

The changes which are described are envisaged as occurring, firstly, temporally and secondly, spatially. For, given the assumptions underlying this work, a pattern of temporal relations will be reflected in an analagous pattern of spatial relations, and a pattern of spatial relations will be a reflection of an analagous pattern of temporal relations. The assumptions and the nature of spatial and temporal relations are elaborated in Chapter Three. The changes which are described are also general changes which will occur on the average for the whole group of retail outlets comprising a retail trade, not necessarily the changes which will occur for any particular outlet.

TABLE 5.11

TABLE 5.11

ASSOCIATIONS OF OUTLET LOCATION, OUTLET COSTS, OUTLET EFFICIENCY, OUTLET COMPETITIVE CHARACTERISTICS AND THE MEANS OE COMPETITION, UNDER THE CURRENT ORGANISATION OF GROCERIES DISTRIBUTION

LOCATION	SCALE: Mean Av. Weekly Takings ($A)	OWNER-SHIP: Pn. Outlets, Chains, Indep. Private Cos.	BUYING ORG.: Pn. Outlets Buying Wholesale	BUYING ORG.: Pn. Outlets Buying Direct	COMPETN: Pn. Entreprnr. Fearing Comp.s Retaliation	MEANS OF COMPETITION: Pn. Outlets with Delivery Service	MEANS OF COMPETITION: Pn. Outlets with Credit Service	MEANS OF COMPETITION: Mean Relative Price Index	MEANS OF COMPETITION: Mean Overall Range of Goods Index	MEANS OF COMPETITION: Pn. Outlets with Cent. Advertising	MEANS OF COMPETITION: Pn. Outlets with Indep. Advertg.	COSTS AND EFFICIENCY: Mn. Av. Weekly Costs of Goods Sold ($A)	COSTS AND EFFICIENCY: Mn. Av. Weekly Adv. Exp. ($A)	COSTS AND EFFICIENCY: Mean Av. Amount out on Credit ($A)	COSTS AND EFFICIENCY: Mean Ratio, C.O.G.S. per Takings	COSTS AND EFFICIENCY: Est. Mean % Overall Gross Margin	COSTS AND EFFICIENCY: Mn. Ratio, Advert. Exp. per Takings
BUSINESS AREA CLASS																	
N1	2733	.26	.47	.26	.10	.68	.63	.967	331	.63	.32	2465	29	163	.788	21	.006
N2	1200	.13	.26	.04	.13	.86	1.00	.978	253	.65	.35	877	4	601	.761	24	.002
N3	880	.05	.63	.05	.02	.89	.87	.981	177	.24	.05	692	5	341	.755	23	.002
N4	679	.00	.67	.00	.04	.86	.92	.990	165	.11	.02	516	1	634	.748	25	.001
J1	1763	.16	.39	.28	.22	.88	.83	.967	697	.11	.28	1516	28	91	.862	14	.006
J2	12100	1.00	.00	1.00	1.00	.50	.50	.994	220	.50	1.00	9340	130	1000	.777	22	.011
J3	842	.12	.25	.00	.00	.75	1.00	.974	259	.29	.00	684	2	819	.763	24	.002
J4	639	.00	.75	.00	.00	.50	1.00	.991	130	.00	.06	430	0.3	470	.703	30	.000
REGIONAL MARKET																	
S.BAY	2192	.14	.38	.13	.18	.93	.75	.981	269	.25	.19	2.36	18	719	.710	29	.004
G'ORCHY	1337	.09	.47	.06	.03	.90	.94	.990	209	.35	.13	1036	10	888	.759	24	.002
B'RIVE	1223	.07	.25	.06	.00	1.00	1.00	.982	256	.50	.25	882	6	470	.744	26	.003
MNAH	1182	.07	.57	.10	.19	.07	.07	.977	190	.16	.13	970	9	365	.815	18	.002
C.CITY	1084	.14a	.61	.10b	.07	.80	.88	.985	186	.19	.10	858	10	246	.757	24	.002
N.HOBART	774	.02	.64	.02	.01	.79	1.00	.979	186	.19	.08	670	2	473	.767	22	.001

___ Values reflecting a high degree of specialisation in means of competition: variety of goods, services, advertising or price.

a Figure inflated by the concentration of small stores which are owned by private family companies set up by the Greek immigrant entrepreneurs in this market.

b Figure inflated by the concentration of stores in the C.R.A. which deal direct.

Sources: Statistical Appendix 4 - Tables 4.1, 4.10 to 4.12, 4.16, 4.18, 4.24, 4.50;
Statistical Appendix 5 - Tables 5.2, 5.9(i), 5.13, 5.18.

Network of Primary and Secondary Linkages of Outlet Costs and Efficiency Characteristics and Outlet Location

Under the present organizational structure of distribution, the unit cost decreases which follow an increase in groceries outlet scale will be in many ways a key to greatly increased profits. However, it was shown in Chapter four that a significant increase in outlet scale is itself dependent upon a change in outlet location from lower order to higher order business areas, or from inner suburban to outer suburban markets. The nature of the relations between scale increases, rapidly declining unit costs and rapidly increasing profits under the current organizational structure of distribution will therefore stimulate a change in outlet location from lower to higher order business areas, and from inner to outer suburban markets. The change may be effected by new entrants being attracted to upper order business areas and outer suburban markets, or by relocation of some existing outlets, or by the disappearance of outlets of lower order business areas and inner suburban markets as outlets in upper order business areas and outer suburban markets gain a competitive advantage, or by a combination of all three.[76]

Any such changes from lower to higher order business areas or from inner suburban to outer suburban markets, will be followed by an increase in outlet scale and by a decline in outlet unit costs. The scale increase and unit costs decline will in turn be followed by more flexible use of the means of competition and more vigorously competitive oligopolistic behaviour by outlet entrepreneurs to gain still further increases in scale. All these changes will demonstrate to existing and potential entrepreneurs the possibility of obtaining increased outlet scale and profits in upper order business areas and outer suburban markets. The changes will therefore cause an increase in the perceived optimum scale of outlet, and further changes in location will occur as entrepreneurs attempt to attain it.

There will therefore exist a complex pattern of linkages of outlet location, outlet costs and efficiency characteristics, outlet scale, and outlet competitive characteristics, which will make up an overall interaction of groceries outlet cost structure and efficiency and outlet location. The pattern of linkages will depend on the current state of the organizational structure of groceries distribution. The suggested pattern is summarized diagrammatically in Figure IV.4 and grafted onto the relations between outlet scale, outlet location, and outlet competitive characteristics which were discussed in Chapter four.

The general relations shown in Figure IV.4 will take place over time, and will also be reflected in an analagous pattern of relations over space.[77] Consequently, if it holds, the following associations should be displayed by the data for the spatial cross-section of groceries outlets in Hobart in 1964. A change in groceries outlet location from lower to higher order business areas, or from inner suburban to outer suburban markets, should be associated with:

(i) an increase in outlet scale;

(ii) an increase in the proportion of outlets which are independent private family companies, or which are members of companies which are national or local chains;

(iii) an increase in the proportion of outlets buying direct from manufacturers, and a decline in the proportion of outlets buying from traditional wholesalers, giving lowered purchase prices of goods sold and lowered unit advertising costs;

(iv) increasingly oligopolistic small group competition by retailers;

(v) changes in the means of competition, with considerable variety in the combinations of price and non-price offers used, owing to greater flexibility in retail operations;

(vi) outlet cost structures and efficiency characteristics reflecting compromises between the direct effects of increased scale on costs, and the costs substitutions which arise with changing emphasis on different means of competition.

Table 5.11 provides evidence that these relations did hold for the cross-section of groceries outlets in Hobart in 1964. It may therefore be concluded that the pattern of relations in Figure V.4 made up the observed overall relations of outlet costs, efficiency and location, and thereby helped to account for the observed locational structure of groceries retailing in Hobart in 1964.

The pattern of linkages of Figure V.4 gives further support to the first and main hypothesis of this work: "that the locations of the retail outlets of a given trade become significantly interrelated in predictable ways with many other of their own characteristics (including their cost and efficiency characteristics)." In the case of Hobart's groceries outlets, the hypothesis can be used to identify some of the important variables which are interrelated with an existing pattern of retail location, and also to identify the precise ways in which the variables affect that pattern.

The pattern of secondary linkages of Figure V.4 also gives unexpected support to the second hypothesis of this work: "that the locations and other characteristics of the retail outlets of a given trade become interrelated in predictable ways with each others locations and other characteristics, in the process of competition for revenue." For, looking at the relations of Figure V.4 which have been verified in the case of Hobart's groceries outlets, it can be seen that changes in the location and in the costs and efficiency characteristics of outlets have predictable effects on the numbers, sizes and locations of their major competitors, and thus on many of their competitors' characteristics. And in turn, changes in the numbers, sizes and locations of major competitors, have predictable effects back on outlet location and cost and efficiency characteristics, as well as on outlet price and non-price offers. Unfortunately, it is not possible to go into the details of this complex series of interactions here.

CONCLUSIONS

This chapter, centring on the relations of Hobart groceries outlet locations and costs and efficiency characteristics, has given support to the two hypotheses of this work, and has helped to account for the locational structure of groceries retailing in Hobart in 1964. The support given to the two hypotheses, and the particular network of relations connecting outlet location and costs and efficiency in the Hobart case, lead finally to conclusions concerning the wider theoretical and empirical implications of the analysis.

Implications for Future Theoretical Studies of Retail Location

Firstly, the appearance in Hobart of the hypothesized strong predictable interrelations of outlet location and outlet costs and efficiency characteristics suggests that existing theories may be inadequate for the explanation and prediction of retail location. For there is no single body of theory which embraces the observed overall relations of outlet location and costs and efficiency characteristics, be it current location, marketing, price or competition theory, and be it applicable to firms in general, or to retail firms in particular. There is therefore no body of theory either which embraces the linkages which have been found to compose the interrelations of outlet location and costs and efficiency under the current organizational structure of distribution, that is, the linkages between outlet scale, outlet costs and efficiency characteristics, outlet competitive characteristics and the means of competition, as these linkages are shaped by the current organizational structure of distribution. Indeed, there is currently little attention paid at all in theory to the connections between retail outlet costs and retail outlet location: the effects on retail location of customer demand have long been the centre of attention.[78] There therefore may be a need for a theory whose explanation of retail location is oriented along the lines suggested by the two hypotheses of this work, which embraces and improves upon current theories, which is applicable in metropolitan areas, and which pays particular attention to the interrelations of retail cost and retail location.

Some deficiencies of the principal body of retail location theory, central place theory, seem to be particularly clearly revealed. No version of the theory explicitly predicts the hypothesized and observed relations which are described in this chapter and summarized in Figure V.4, and which are important predictable causal associations of retail location and other variables. This appears to be the result of the fact that certain assumptions are made which are common to all versions of central place theory, and which do not coincide with the hypothesized and observed relations of cost and location for Hobart's groceries outlets.

One apparently erroneous assumption is that the "threshhold" of outlets, that is, the minimum size of outlet which can enter or survive in a market, is the same for the outlets of a given trade, as well as for the groups of outlets within a given trade comprising business types, irrespective of their location. Another apparently erroneous assumption is that the "threshhold" may be defined by the point of unitary elasticity on a typical outlet cost curve which is the same and a given for all the outlets of a trade or business type, and which is unaffected by outlet location.[79] The observations for Hobart's groceries outlets seem to suggest that there is instead a range of threshholds, one threshhold belonging to the outl ets of each different class of location. The observations for Hobart's groceries outlets also suggest that a costs curve for the outlets of a trade should be imagined as a line joining a series of points showing the costs of the successively increased outputs which are obtained at successively different locations: retail outlet cost functions cannot be treated as if they were divorced from outlet location.

Tables 5.3 and 5.5 provide evidence that there may be a series of normal scales of operation and associated normal costs and efficiency characteristics for the outlets of a given trade, only one of which is appropriate for any particular class of location - for inner as compared with outer suburban markets, for lower as compared with higher order business areas.[80] There is additional evidence that there may be a range of "threshholds" and cost structures for the outlets within any particular business type in a trade, which are similarly associated with outlet location. For in Hobart, there is a high degree of variability in the scale, cost and efficiency characteristics of supermarkets, groceries and general stores respectively.[81] In addition, statistically significant covariations were obtained of general store location with normal general store scale and costs characteristics (Tables 4.1, 5.1), even using the particularly small sample of general stores in each locational class.

In central place theory, the erroneous threshhold assumption, that is, the erroneous assumption of given similar scale and cost conditions for all outlets of a given business type which exist independently of outlet location, seems to lead directly to erroneous predictions. Firstly, the importance seems to be under-emphasized of retail outlet cost characteristics in the determination of retail locations. In the theory, variations in potential outlet cost structures between potential outlet locations cannot have any significant part in the determination of profit - maximising retail locations; attention is centred solely on the determination of optimum profit retail location through the maximization of sales by maximizing accessibility to customers under given cost conditions. The selection of retail locations for the outlets of any business type cannot arise therefore through the series of interactions of outlet scale, location, cost, and the means of competition, which seem to apply in the case of Hobart's groceries outlets in general, and to the outlets of at least one business type (general stores) within the trade in particular.

In central place theory, too, the assumed uniform cost-scale relations which define the "threshhold" for the outlets of a

given trade or business type are not only unrelated to variations in outlet location, they are unrelated to any variations in the nature of competition for revenue which may occur for outlets in different locations, and which may effect costs and output in different locations. In all the major statements of central place theory, every outlet of every business type operates in the same sort of market structure, namely under conditions of spatial monopolistic competition,[82] where each entrepreneur gains some control over the means of competition by virtue of the protection from other competitors which is afforded by his position in space. But the relations of Figure V.4, which accord with observations for Hobart's groceries outlets, seem to show that a cost curve for the outlets of a retail trade or a retail business type should be imagined as a line joining a series of points showing the cost of the successively increased outputs which are obtained not only at successively different locations, but also under successively different types of market structure.

Further, Figure V.4 suggests that, within the Hobart groceries trade, the business types which are defined by a 'characteristic' scale and a 'characteristic' cost structure, may actually be the result of the locational choices and operational adjustments of individual outlet entrepreneurs, rather than be the cause of them, as central place theory postulates. The analysis in this chapter suggests that business types emerge within a trade from a series of interactions between outlet location, scale, cost and efficiency characteristics and other outlet operational characteristics, under varying market conditions. It therefore seems that an accurate explanation of the locations of outlets of a retail trade or of a retail business type - that is, an explanation which not only correctly predicts the locations of retail outlets but which also correctly identifies the important variables affecting retail location and the ways in which they do so - might not be given by a theory which starts with a priori assumptions of given business types, given ~~constant~~ cost and scale conditions independent of location, and a single given type of market structure.

But if central place theory may not correctly or sufficiently emphasise retail establishment costs when making explicit retail location predictions, leading sorts of economic theory which pay attention to firm cost functions do not correctly or sufficiently make explicit their connections with firm location. None embrace the kinds of relation which are shown in Figure V.4 between firm location, costs, scale, means of competition and competitive characteristics, and which seem to occur in the case of Hobart's groceries outlets.

In addition, there is no body of theory which explicitly relates current patterns of retail outlet location and operations to the current organizational structure of retail distribution. The study of Hobart's groceries outlets has demonstrated that the form of ownership and control of individual outlets, and their relations with different types of buying and advertising organizations and with manufacturers, may have a particularly strong bearing on the current pattern of retail outlet location and operations. Sternlieb has recently criticized central place theory for its failure to study retail location in the context of the present organizational structure of distribution;[83] Micwitz has recently criticized economic theory for its failure to consider the effects of market structures in any preceding stage of manufacture and distribution on firm operations

at any given stage;[84] Clark stresses that competition in buying as well as in selling is a neglected side of price and production theory for the firms at any stage of production.[85] To account for the location of retail outlets, therefore, it is possible that not only a new theory may be needed which is oriented along the lines suggested by this work, and which embraces current location and price theory. It seems that a theory may be needed which will account for retail outlet location, and also specifically relate it to the formation of the power groups of outlets which are formed by the large independent companies, national and local chains and voluntary retailer co-operatives in selling, and to the emergence of the same power groups for the negotiations of retail buying and advertising deals with manufacturers. The confrontation of representative member outlets of the few large power groups in selling, and of the same few large power groups themselves in buying, suggest that game theory might provide an appropriate framework for the development of any new theory.

Lastly, the hypothesized and observed relations for Hobart's groceries outlets seems to reveal the need for a dynamic theory of retail location. For the relations comprise a systematic sequence of spatial and temporal changes in retail outlet location and other variables which can be predicted only by a dynamic spatial model. In addition, the hypothesized and observed pattern of relations is dependent upon the current state of at least one exogenous variable, the organizational structure of distribution. The hypothesized and observed pattern of relations may be assumed stable therefore only over a current middle-run period, since the organizational structure of distribution may itself undergo further radical changes in the not-so-distant future. Ideally, a long-run dynamic spatial model might be necessary to predict the differing patterns of relations which might occur for different middle-run time periods with changes in the exogenous variable.

Implications for Future Empirical Studies of Retail Location

The hypothesized pattern of relations, plus the corresponding pattern of relations observed for Hobart's groceries outlets, have wider empirical as well as wider theoretical implications. They can be used with great caution to make some suggestions concerning trends in and plans for retailing in western cities in general, and ~~as~~ in Australian cities in particular.[86] Firstly, comments can be made about the recent and widespread phenomenon of the suburbanization of retailing, that is the change in the locations of retail outlets of many trades and in many cities from inner suburban to peripheral suburban areas.[87] Secondly, comments can be made concerning the decline in many cities of the small corner store and neighbourhood shopping centre, and the rising importance of the regional centre; that is, comments can be made concerning the widespread change in retail location in many

trades from lower order to higher order shopping centres.

Although the analysis in Hobart was confined to only one sort of convenience goods trade, the groceries trade, the relations in Figure V.4 and the data in Tables 5.3 and 5.5 suggest that, for any particular convenience goods trade, both sorts of change in retail location may be dependent upon the emergence of the new form of organizational structure of distribution, in which negotiations are conducted directly between manufacturers and retail firms or retail co-operative groups, and the traditional wholesaler is by-passed.

Figure V.4 and Table 5.5 also suggest the precise ways in which the current organizational structure of distribution may effect both sorts of change in retail location within cities. The present relations of manufacturers and retailers provide for greatly increased outlet scale and profits, which are attainable under a pattern of very rapidly declining retail unit cost of goods sold and advertising costs, increased flexibility in the means of competition, and increasingly active oligopolistic competition.[88] However, the scale and profits increases can be obtained only through a change in outlet location to higher order business areas and outer suburban areas. This induces the shift in outlet location from lower to higher order business areas and from inner to outer suburban markets.

The relations of Figure V.4 and the data of Tables 5.3 and 5.5 not only suggest what may be the causes but also what may be some of the effects of the present changes in the location of the outlets of a particular convenience goods trade. With the shift from lower order to higher order business areas there may be a decline in the provision of customer services, and an increase in the use of widely - and heavily-advertised price-cutting and a greater range of goods in competition. Both total aggregate expenditures and outlet scale may increase under these conditions, aggregate unit costs may decline and overall economic and physical efficiency increase. The changes which may occur with shift in outlet location from inner suburban to peripheral suburban areas are more difficult to predict, as a variety of adjustments in price, service and range of goods may occur, possibly related to differences in the socio-economic characteristics of households in different outer suburban areas. However, in general, it seems that the outlets of a convenience goods trade in peripheral suburban areas may have a combination of high aggregate total and low aggregate unit costs, and high overall economic and physical efficiency.[89]

The possible increases in general physical and economic efficiency with the suburbanization of the outlets of the trade, and with a shift in outlet location from lower to higher order business areas, in turn suggests that increases in economic and physical efficiency in at least some trades within the city may be consequent upon present trends in location and the emergence of the current organizational structure of distribution. Such increases in efficiency may be accompanied by generally lowered prices in the

case of changes in outlet location from lower to higher order business areas, but not necessarily by generally lowered prices with changes in outlet location from inner suburban to outer suburban markets. Increases in efficiency may also go hand in hand with less imperfect competition between retail outlets.[90]

However, it should be remembered that any assessment of changes in efficiency must be taken with a large grain of salt. For the whole question of the efficiency of the outlets of a retail trade is bedevilled by variations in the tied goods-and-services product of individual retailers, that is, by the non-homogeneity and lack of comparability of their outputs. The small-scale outlet of a trade in the inner city area or the lower order shopping centre therefore need not necessarily be regarded as a less desirable unit than its large-scale 'counterpart' in outer suburban areas or regional shopping centres, for the goods and services combination which they provide and therefore their efficiencies are not truly comparable. In addition, the small-scale outlet's higher aggregate unit cost may be made up of some sorts of unit cost which are actually lower than the larger scale outlets, while others are considerably higher. For example, in Hobart, the smallest type of outlet, general stores, probably have the lowest unit advertising costs and rental of all scales of outlet. The specialization of groceries outlets of certain locations and outputs in efficiency in certain directions at the expense of others, the range of scales of outputs of groceries stores, and the variety of the price, range of goods and service choices they offer to consumers, suggest that a general improvement in metropolitan retail efficiency does not necessarily make the elimination of the small-scale unit either necessary or desirable.

A final conclusion may therefore be drawn for policy makers. There appears to be no easy yard stick for the determination of a specific optimum store size of any business type which may be applied in planning to a whole city, or even to a large part of the urban area.[91] The question of an appropriate size of outlet for each type of trade in planning may need to be replaced by the question of determining the range of sizes for the outlets of a given trade which will be appropriate in different locations, to the different demand of customers for goods and services, and to different local market conditions.

1 c.f. Holdren (1960, 29); Duncan and Phillips (1963 edn., 670-674); Smith (1948 edn., 2-33); Smithies (1938); Dunn and Bradstreet (1959).

2 Holdren, for example, divides all retail costs over the short-run into fixed costs (including rental), discretionary fixed costs, and variable costs (1960, 27-66), as does Holton (1957).

3 This is not an unrealistic assumption about retail establishments. Compared with other types of production unit, they require small capital investment, and are highly mobile and adaptable.

4 e.g. Holdren (1960, 27-66); Ryan (1962, 44-103).

5 "That the locations of the establishments of a retail trade become significantly interrelated in predictable ways with many other of their own characteristics (including their costs characteristics." (Hypothesis 1).

6 Only by using these definitions could reasonably accurate indications be obtained of the expectations of the entrepreneurs of the Hobart groceries trade about the 'trade's 'costs functions', and about the ways in which certain costs (e.g. of advertising) can be manipulated to induce increased sales and profits. The 'trade costs functions' concept is used here as elsewhere (e.g. Douglas, 1962) as a necessary simplifying device for clarity of analysis. The 'trade costs functions' are the total unit and total aggregate variable costs functions, and the total and unit costs functions for the different costs categories (e.g. labour, advertising), for the outlets of the Hobart groceries trade. They are analagous to manufacturing industry firm costs functions (e.g. Ryan, 1962, 44-103). Each function for a retail trade can be envisaged as a generalisation of the detailed graph of all the many and different functions of the same type which pertain for the different scales of outlet at a given time with their differentiated but not completely different products. It will be remembered that the trade costs functions apply here to anticipated changes in costs and output over an indefinite middle-run period, composed of the not-so-distant past and future, and the present.

7 Chapter four, footnotes 4, 3.

8 Another notable omission was a unit costs variate to measure costs of providing customer services per unit output. This was because data could only be obtained for a very indirect measure of the total costs of providing consumer credit, namely, total amount outstanding on credit, and the ratio of total amount outstanding on credit to takings did not appear to provide a meaningful measure of the unit costs of providing consumer services. The lack of such a unit costs measure did not altogether preclude conclusions concerning the unit costs of providing consumer services. For example, if takings rose greatly as total amount outstanding on credit markedly fell, it could be concluded that unit costs of providing consumer services declined as output increased, even if there were no indication of the precise unit costs values.

9 Terms and definitions of economic and physical efficiency from Seldon and Pennance (1965).

10 An added incentive in this direction was the normative overtones often given to conclusions concerning the relative economic efficiencies of retail outlets - for example, the suggestion that certain types of more efficient, larger retail units are more

desirable than other less efficient, smaller establishments (Levy, 1948; Hall, 1949; Smith 1962 edn.). In view of the difficulties of measuring and comparing the economic efficiencies of retail outlets, such suggestions appear questionable, and to avoid them too much stress should not be placed on deriving conclusions about efficiency. For a discussion with a normative emphasis, a much more rigorous analysis and especially a much high degree of comparability of outlet outputs seems to be required than obtained in the case of Hobart's groceries outlets.

11 For a comprehensive review and discussion of the problems of defining and measuring retail output and efficiency, see Hall, Knapp and Winsten (1961). See also Douglas (1962).

12 The following argument to show this was supported by Mr. J. Hayles, Lecturer in Economics, Flinders University of South Australia (conversation October, 15th, 1965).

13 The "overall gross margin on sales" of a retail store represents the proportion of takings which is allowed to cover the store's net profit margin and all costs except costs of goods for sale. Measures which reduce the overall gross on sales increase the ratio of costs of goods sold to takings, and thus give an apparent increase in unit costs of goods sold measured by this ratio (Duncan and Phillips, 1963 edn., 442-450).

14 Only in unique cases will gross margins be lowered without price lowering. This could occur only with an alteration in the store's range of goods such that more goods are sold with lower margins but higher prices, for example, where a groceries entrepreneur tries to extend into higher quality or more perishable lines (e.g. imported tinned foods, greengroceries, meat) which are expensive for him to buy, but which he feels need to be offered at a low a price as possible.

15 The figures for gross margins in Table 5.3 are not based on entrepreneurs' estimates of their gross margins. An attempt was made to collect this information, but the data collected was not analysed, firstly, because there were no estimates for the many entrepreneurs who had no knowledge of their overall gross on sales, and secondly, because a high proportion of the estimates of an overall gross which were obtainable were for overall gross on costs not sales, where costs may or may not have been full invoice costs or full invoice costs minus discounts.

16 See footnote 19.

17 It is true that there are signs in Table 5.3 that falling purchase prices of goods for sale, the elimination of traditional customer services, and the greater use of self-service techniques as outlet scale increases, may lead to conscious or unconscious substitutions by entrepreneurs of increased expenditures for a wider range of goods for expenditures on services and labour and floorspace. This could give rise to increases in real unit costs of goods sold which compensate for the decreases obtained with increases in scale and lowered purchase prices. But in the face of the evidence available, it is difficult to believe that increases in unit costs of goods sold through factor substitutions would be great enough to more than outweigh the decreases engendered by the great scale increases and the substantially lowered purchase prices of goods.

Firstly, the increases in unit costs of goods sold through the transfer of expenditures from labour and floorspace cannot be high. The % rates of increase in wages and rentals in comparison with the % rates or increase in costs of goods sold do not indicate high possible rates of substitution, and outlays on wages and rentals are in any case very low in comparison with outlays on goods for sale. Thus an amount transferred from wages and rentals to expenditures on goods for sale must form a very small proportion of any change in total costs of goods sold, and any increase in unit costs of goods sold resultant from the transfer must be very small in relation to the size of other negative changes in this category of unit costs. Secondly, although the % change in costs of goods sold generally rises with scale of outlet while the % change in costs of consumer services (amount outstanding on credit) falls, again the amount of money spent on credit and available for transfer would be very small in relation to the changes in total costs of goods sold; unit costs increases from this source would again be very small compared with the size of other negative changes in unit costs. Thirdly, any increases in unit costs of goods sold through transfer of expenditures to goods for sale from rentals, wages and services, are limited by the extent to which entrepreneurs prefer to transfer the expenditures not to goods for sale but to advertising, promotions and display. For Hobart's groceries outlets, the discrepancies between the % rates of increase for costs of goods sold and the % rates of increase in advertising costs seem to reveal a preference to transfer at least some expenditures on rentals, wages and customer services to expenditures on advertising. For advertising expenditures show still higher rates of increase than costs of goods sold in relation to the rates of increase in remaining costs (Table 5.3).

18 A decrease in real unit advertising costs does not seem as far-fetched as seems to be indicated by the very high % rates of increase in advertising expenditures as compared with takings in Table 5.3. The % rates of increase are inflated because advertising outlays are only small, so that small increases and decreases in money terms give grossly inflated % changes.

19 Details of the sizes of the rebates which were gained in this way were jealously guarded by retailers, wholesalers, and co-operative group managers. The impression gained by the author was that these rebates were particularly high for the largest-scale retail firms in the highest order business areas which could enter into direct negotiations with manufacturers. The rebates are discussed further on.

20 In the absence of precise information about real output, about the rates of decline in the prices of advertising services with increase in outputs and about the rates of substitution between advertising and other expenditures, this conclusion must remain suspect. However, this appears the most objective and quantitative assessment in the face of available evidence, including the author's field experience that for the largest scales of outlet in higher order centres (N_1, J_1, J_2) advertising rebates were very high indeed.

21 A comparison of the rates of increase in advertising expenditures and costs of goods sold (Table 5.3) also seems to reveal the possibility of substitutions of advertising expenditures for costs of goods sold. However, since the prices of goods for sale and of advertising services seem to be the only prices of factors of production to decline with increase in outlet scale, and since both advertising and costs of goods sold have very much higher rates of increase than other categories of expenditure, it seems most likely that substitution occurs of both advertising and costs of goods sold for other types of expenditure, rather than of advertising for costs of goods sold.

22 The lowest values of all probably occur in the C.R.A., where the minimum value of wages to takings is recorded, although the largest outputs do not occur there. This reflects the lack of the Thursday-Friday-Friday evening trading peak which occurs for outlets in suburban shopping centres, and the consequent restriction of the number of part-time workers who must be employed and the even workload of the number of full-time workers employed. The rapid rise in labour costs in comparison with the increase in takings owing to "end of the week trading" was regarded as one of their serious problems by the entrepreneurs of the large-scale outlets in suburban shopping centres. In the C.R.A., very low real unit labour costs, together with very low real unit rentals, enable the third-largest scale outlets in Hobart to operate with the minimum gross margins and the lowest price levels. Low gross margins here probably also reflect the pressures on net profits which arise from the strong competition faced by C.R.A., outlets from each other and from outlets in neighbouring regional centres.

23 Charvat (1961, 11-29, 53-74).

24 Additional support is given to these conclusions by an examination of the ratios of rentals to takings for groceries and general stores separately. The same statistically significant relation that is displayed by these figures for all groceries outlets in Table 10.3 is displayed by the figures for the much smaller samples of groceries and general stores respectively (Table 5.1). This suggests a very strong and pervasive association exists of the type described between groceries outlet location by class of business area, and groceries outlet unit rentals.

25 The costs of the provision of consumer services decline as these services are gradually eliminated, except in the case of the outlets in the regional shopping centre of Sandy Bay. But the figures of Table 5.3 show that it is highly unlikely that, with increase in outlet scale, any savings in total costs by curtailing consumer services will offset the extremely large aggregate money increases in costs of goods sold, wages, advertising expenditures and rentals.

26 Unexpectedly low unit rentals are found in the smallest scale outlets of the lowest order business area class (N4), where price per square foot of floorspace is low, as well as for the large-scale outlets in the highest order C.R.A., where floorspace is very dear and entrepreneurs use less for unit output. Unexpectedly high

unit rentals are found in the suburban regional shopping centres, where floorspace prices and floorspace consumption per unit output are both relatively high. Unexpectedly high costs of provision of customer services (amount outstanding on credit) are found in the cases of the outlets of N2 and J1 business areas.

27 There is also some evidence of a further type of substitution, namely, of expenditures on goods for sale and advertising for rentals (payments for accessibility to customers) as outlets increase in scale (Table 5.3). The % rates of increase in rentals from lower order (N2 to N4; J3, J4) to higher order (N1, J1) business areas lag behind the % rates of increase in takings, in costs of goods sold and in advertising expenditures. This sort of substitution seems to occur even though there are obvious limits on the reduction of the increases in total expenditures on space which can be incurred as output displayed and sold increases.

28 The outlets of the two classes of business area, J2 and N2, show interesting divergences from the general pattern of relations between outlet costs, outlet location and outlet scale (Table 5.3). The outlets of class J2, the Sandy Bay regional shopping centre, seem to be distinguished by their exceptionally large scale; very high level of customer service provision; very high expenditures on advertising, wages and costs of goods sold; very high total aggregate costs; very low prices; medium gross profit margins; very low unit costs of goods sold; very low unit aggregate costs and very low net profit margins. These features suggest that beyond a certain scale, any increases in profits may be gained by competing by extending greatly the provision of customer services; on the other hand, these features could be a response by these outlets to demands for service peculiar to the high income inhabitants of the Sandy Bay market of which Sandy Bay is the main centre (Table 2.17.(ii)). The outlets of the N2 business area class (local shopping centres) are distinguished by their medium scale, very high level of service provision, low volume of advertising expenditures, high gross margins, medium prices, and relatively low unit aggregate costs. This could be the result of the importance of supermarkets in the nearest regional shopping centres (J1, N1, J2 centres) as the major competitors for outlets in N2 shopping centres (Table 4.8), and thus of the deliberate attempt by N2 centre entrepreneurs to combat the very low prices of these stores with higher price plus more service offers.

29 Notwithstanding these general trends, the highest physical efficiency in the use of labour is recorded not for the largest, but for the second largest outlets of business area class N1, and the outlets of the C.R.A., with the highest economic efficiency in the use of labour have only the fifth highest physical efficiency (Table 5.2). The explanation for this is probably that for the largest-scale outlets of Sandy Bay, end-of-week peaking of trade reaches such proportions that the use of large numbers of high-cost part time staff makes for declining physical and economic efficiency in the use of labour. There are signs that diseconomies of scale are beginning to operate. In the Central Retail Area, where excessive peaking of trade does not occur, a high proportion of manhours worked are put in by low-wage small-store family operators, or in large stores, by low cost full-time but junior staff with a limited number of senior supervisors. This results in a higher level of economic than of physical efficiency in outlets in the C.R.A.,

30 Despite these general trends, the highest physical efficiency in the use of space is recorded by the third largest outlets of the C.R.A., while the second largest outlets of business area class N1 have the fifth highest efficiency (Table 5.2). This is consistent with the economic efficiency in the use of space of outlets in these areas as shown by their unit rentals. C.R.A., outlets have an unexpectedly low unit rental in relation to their output, which is associated with a tendency to restrict consumption of high-price central city space. An allocation of both gross floorspace and selling space (Tables 5.4) which is much less than proportional to outlet output or takings will also appear as increased physical efficiency in the use of space. On the other hand, consumption by outlets of class N1 of disproportionatly large amounts of medium-high price space in relation to their output will give them unexpectedly low physical and economic efficiencies in the use of space.

31 pp. 227.

32 This is so even allowing for the high degree of variability of individual outlet values about the regional market mean for each variate (V values, Statistical Appendix 4 - Tables 4.10 to 4.23).

33 cf. Chapter 3, pp. 200 ff., especially p. 203.

34 This expectation is reinforced by the known declines in Hobart in the purchase prices of goods for sale and of advertising services with increase in outlet scale (pp327-9).

35 This sort of behaviour is consistent with the findings of other theoretical and empirical studies of the behaviour of retail firms, especially supermarkets (e.g. Andrews, 1950, 148-153; Holdren, 1960, 67-116).

36 pp. 292-295.

37 Exceptionally low values for costs of goods sold to takings occur in two of the three peripheral markets, Sandy Bay and Bellerive (Table 5.5). Low unit costs of goods sold in the peripheral markets seem to reflect the low purchase prices of goods for sale through bulk discounts, and to provide for high gross margin operations and medium - high retail prices to cover the costs of specializing in the provision of customer services and the extension of ranges of goods and products into slowly-moving or high-risk items e.g. exotic foods, meats and frozen goods. The outlets of the upper income market of Sandy Bay have the lowest ratios of costs of goods sold of all, combined with the highest overall margin, highest ranges of goods and highest level of combined personal selling and other services.

38 Unit advertising costs are highest in the peripheral suburban markets but appear to be only fractionally higher there than in other areas (Table 5.5). Here the lowering of unit advertising costs with increasing outlet scale, possibly through the discounts for the use of advertising services which are obtained by larger scale outlets, is balanced by the tendency to use more advertising in competition for revenue, particularly in the case of the upper income Sandy Bay market. There thus appears little tendency for unit advertising costs and economic efficiency in the use of advertising to vary between the outlets of peripheral suburban and other markets.

39 Unit costs of goods sold seems to be an exception, being unexpectedly high. However, unit costs of goods sold, as measured by the mean ratio of costs of goods sold to takings for the market, may be overestimated. The outlets of the mid suburban market specialise in the lowest price, lowest margin operations of all. Because of the possible decline in prices from the outlets of the peripheral and inner city markets to the outlets of mid suburban markets, the mean takings for the outlets of the mid suburban market will underestimate their real output relative to that of outlets in the other markets. Consequently, the mean ratio of costs of goods sold to takings for the mid suburban market will relatively overestimate the mean ratio of costs of goods sold to output, or the real unit costs of goods sold. Nevertheless, costs of goods sold may still be at a maximum here. This may reflect the need to frequently buy and assemble in smaller lots the quantities of the quick-moving staples in which the medium-scale outlets of this market specialise.

40 The economic efficiency of the North Hobart outlets in the use of labour may be still lower than their very high mean ratio of wages to takings shows. For wages in this market are probably underestimated in relation to takings because of the inaccurate wages data provided for the very small family - operated businesses.

41 An exception at first appears to be economic efficiency in the use of labour, for the mean wages to takings ratio (.047) for the outlets in this market is almost as low as that for the largest scale outlets in the peripheral suburban markets of Sandy Bay (.039) and Glenorchy (.043). However, there is little doubt that the estimated mean wages to takings ratio is too low for the outlets of the central city market, because the entrepreneurs who operated a preponderance of small family business in the sampled outlets for this market grossly underestimated their labour costs.

42 Computer output for separate business types held by the author.

43 Supermarkets, groceries and general stores rank first, second and third by scale, and also by expenditures in each category of total costs, with the only exception being costs of provision of customer services (amount outstanding on credit) (Table 5.7); they must therefore rank 1, 2 and 3 also in total aggregate costs. The rank of supermarkets, groceries and general stores by the exception, costs of provision of customer services, reflects the tendency of supermarket entrepreneurs to concentrate on heavily-advertised low-priced goods in competition, while medium-scale groceries entrepreneurs counteract supermarket competition by specialising in personal selling and other services. Supermarkets, groceries and general stores unexpectedly do not rank 3, 2, 1 by the mean values for each unit costs variate, namely, the ratio of costs of goods sold to takings, wages to takings, advertising expenditures to takings and rentals to takings (Table 5.7). But, because of the low price levels of supermarkets, it is possible that, although the mean ratio of each type of costs to takings may be highest for supermarkets, the true mean ratio of each type of costs to output may be at a minimum (with the possible exception of advertising expenditures). Conversely, for the highest-price, smallest-scale general stores, the ratio of each type of costs to output may be at a maximum. This latter conclusion is more open to question, however, because medium-scale groceries specialise in personal selling and other services in competition; the higher mean ratios for groceries than general stores of wages to takings and of amount outstanding on credit to takings, could therefore reflect higher real unit labour costs and higher real unit costs of

provision of customer services. In addition, real unit rentals could be higher for groceries than for general stores, for the smallest-scale general stores of the lowest order business areas would presumably occupy sites with a very low price per square foot of space occupied. It follows that supermarkets may have the highest economic efficiency in the use of labour, in the acquisition of goods for sale, on the use of customer services, and in the use of space; they will therefore also have the highest overall economic efficiency; groceries, on the other hand, may have the lowest economic efficiency in the use of space, labour and customer services, but only the second lowest in the acquisition of goods for sale, and in the use of advertising, promotions and display; because of the importance of costs of goods sold in outlet costs structures, the efficiency of groceries in the acquisition of goods for sale may give them the second lowest overall economic efficiency. General stores probably rank second in economic efficiency in the use of labour, customer services and space, and third in the use of advertising and the acquisition of goods for sale and in overall economic efficiency. With respect to physical efficiency, supermarkets, groceries and general stores again rank 1, 2, and 3 by their mean values for three of the four physical efficiency variates (Table 5.7). A caveat must be entered here: the validity of all these conclusions regarding the comparative efficiencies of the outlets of the three business types are suspect, for their outputs of goods and services differ greatly in kind. It is possible that their efficiencies cannot be validly compared.

44 pp. 224-226.

45 Reviewed pp. 33-36.

46 (1962 edn., 56-176; see especially pp. 62-63 on the location of a retail outlet as an aspect of product differentiation.)

47 McClelland (1966).

48 It will be remembered from Chapter 3 that the changes that are to be described are envisaged as occurring firstly, spatially and secondly, temporally (pp.198-9). A pattern of association between location and other variables has been revealed by the data for 1964 cross-section of Hobart's groceries outlets. This may be interpreted as a pattern of spatial cause and effect; it may also be interpreted as an analagous pattern of temporal cause and effect - that is, as a pattern of relations between the variables which is stable over a current middle-run period, by making the normal assumptions which lie behind cross-sectional analysis (pp.198-9). Consequently, the sequence of change described here may first be envisaged as a sequence of spatial change and secondly as a sequence of temporal change.

The changes refer to the general changes which will occur on the average for the group of retail outlets comprising the groceries trade in Hobart, not necessarily to the changes which will occur for any particular outlet (c.f. Chapter I, pp.32). The description of the changes is therefore a generalisation about conditions in the Hobart groceries trade as a whole, made on the basis of observations for the trade as a whole.

The fact that the description is a generalization affects the meaning of the words "change in location." Temporal changes in groceries outlet location for the trade as a whole are regarded as changes in the proportion of outlets in the different classes of location, namely, in the different classes and types of business area, and in the different regional markets. These

temporal changes in proportions will normally occur if some existing outlets go out of business, and/or some new entrants appear, and/or if some existing outlets change their location to a new locational class. A temporal change in groceries outlet location between locational classes, for example from lower order to higher order business areas, does not mean that each particular groceries outlet currently in lower order business areas migrates to higher order ones, only that an increase occurs in the proportion of outlets in the upper order locations. On the other hand, spatial changes in location for the trade as a whole refer to the changes from all those outlets in the trade which are currently in a particular locational class to those outlets of each other locational class; for example, a change from the outlets in lower order business areas to the outlets of higher order business areas in Hobart in 1964 constitutes a spatial change in groceries outlet location within the group of outlets comprising the Hobart groceries trade.

Similarly, temporal changes in other variables mean the changes in the variables 'on the average' over time for the trade. They will not be effected by each and every outlet making the same adjustment simultaneously in a variable. They may be effected by only some outlets making the sorts of adjustment necessary to produce a change 'on the average' for the trade. Also, spatial changes in other variables mean the general sort of change in the variables between the outlets of different specified locational classes in Hobart in 1964. Spatial increases in scale, for example, are the general increases in outlet scale between lower and higher order business areas and between inner and outer suburban markets.

In cross-sectional analysis, a pattern of spatial change in the variables is assumed to reflect a pattern of temporal change in the same variables which is stable over the current middle-run period. For example, spatial increase in outlet scale between lower and higher order business areas is assumed to reflect a pattern of temporal increase in scale and profits between business area classes which is constant over the middle run. As a result, spatial cause and effect relations - that is, cause and effect relations which hold over space at a given time - are identified as well as the more usual temporal cause and effect relations. For example, in 1964, spatial changes in outlet scale and profits are said to be the cause of given numbers of groceries outlets being in higher order business area classes instead of among the outlets of lower order business area classes. That is, spatial changes in scale in Hobart in 1964 are said to be the cause of the spatial differences in outlet location between lower order and higher order business area classes in 1964.

49 Summary of main points pp. 287-296.

50 Simmons (1964, 57-64, 94-97, 147-150).

51 e.g. Simmons (1964, 66-69, 94-97, 145-150).

52 e.g. Nelson (1958, 33-34, 37-39).

53 P 227.

54 pp. 160 ~ 163.

55 See footnote 48.

56 Summary of main points pp. 297-308.

57 e.g. Nelson (1958, 9-15, 20-35, 37-39).

58 pp. 160-163.

59 c.f. pp. 200ff.

60 Figure V.1; pp. 287-308.

61 For example, the private company operating the Bay supermarket was formed in the period 1955-59 by two brothers who had operated the business since the end of World War II.

62 The Southern Tasmanian co-operative, W.P.L., had 10 members in 1934 and less than 20 members before 1955, but by 1960, total membership had risen to 48. By 1964, membership was 98, and the combined annual turnover of co-operative members was $2,100,000, while annual advertising expenditures for all media were $25,200. Foodstuffs (Hobart) Pty. Ltd., started in 1961 as the Hobart branch of Foodstuffs (Tasmania) Pty. Ltd., which operated for 57 member stores in the state, with the majority of these in Hobart. Foodstuffs (Tasmania) Pty. Ltd., is one of a series of buying organisations of similar name in each Australian state and in New Zealand. At present each organisation manages its buying operations separately, but it is hoped they will some day form a united group. The members of each Foodstuffs buying organisation may also belong to an advertising counterpart, Four Square Stores (Australasia) Pty. Ltd., which has branches in each Australian State and in New Zealand.

In 1964, buying operations for Foodstuffs (Hobart) Pty. Ltd., and Wholesalers (Tas.) Pty. Ltd., were supervised on behalf of group members by a manager at a central office and warehouse. Goods were ordered "off the floor" by members from their group's warehouse, and W.P L., members could take advantage of credit and delivery services. Advertising operations for Wholesalers Pty. Ltd., were conducted at the same office as its buying operations, while those for Foodstuffs Pty. Ltd., were conducted by the separate office of Four Square Stores, which in 1964 was located in Launceston. Advertising operations included negotiations of the costs and timing of advertisements for the group with the managers of local advertising media, the negotiation of joint payment arrangements for advertising with manufacturers; the arrangement of promotion and promotional discounts with manufacturers; and, especially, the coordination of the advertising, pricing and supply of cut-price specials for group members. While members paid a substantial entrance fee to become 'buying members' (for example, $300 in advance for buying membership of W.P.L), they paid only a nominal weekly contribution (less than $1.00) to retain their status as advertising member.

63 All quotations are from an interview with the manager of Wholesalers (Tas.) Pty. Ltd., Mr. A. McLean, on 2.2.65.

64 For example, the average turnover of W.P.L. buying members was estimated for the 1963-64 fiscal period at between $1000 and $1,200 per week.

65 One of the three old-established wholesalers in Hobart, Murdoch Bros., was insolvent by 1964. The manager of another, founded in the 1920's, F. W. Heritage and Co., reported that sales dropped greatly from 1957 on, but had since stabalised. The manager of the third, Burgess Bros. Ltd., a groceries wholesaling business

started in 1878, reported that "sales started declining from about 1957 onwards, despite a move to large modern cash-and-carry premises in 1956, through they stabalised about 1961 and have even increased since then." The manager now feels "that there is no longer any real need of a wholesaler except where transhipment points on the delivery line from manufacturer to retailer have to occur. This is the case in Hobart, but there is now room for only one large wholesaler to compete in buying power with the large firms and the groups." Burgess Bros. now tries to provide locally advertised 'specials' for the smallest scale independent stores who buy there, as well as traditional wholesaler services. (The information about Burgess Bros., and Murdoch Bros. was kindly supplied by Mr. T. Butterworth of Burgess Bros., on 15.2.65. The information about F. W. Heritage and Co., was kindly provided by Mr. E. F. Heritage on 22.2.65.)

66 This interpretation was suggested by the manager of Wholesaler's (Tas.) Pty. Ltd.,

67 Fulop (1964); Stacey and Wilson (1958); Mueller and Garoian (1961).

68 e.g. McClelland (1966).

69 In Hobart, the maximum 'service fee' was less than 4% on the purchase costs of the goods supplied to a member by a voluntary co-operative group. The margin to cover operations was known to be "considerably higher" (Mr. T. Butterworth, Burgess Bros., 15.2.65), ~~the precise margin~~ in the case of the wholesalers, although information concerning the exact margin could not be obtained.

70 Statement by a staff member of a national chain who wished to remain anonymous. The author corresponded with the head offices of Moran and Cato Ltd., Woolworths Ltd., and Coles Ltd., but all three firms wished to keep information regarding their operations strictly confidential.

71 The National food chains have a series of standard store sizes and designs. But the minimum scale of one of their branches is still very large.

72 e.g. Holdren (1960, 67-116).

73 e.g. Mueller and Garoian (1961, 132-137).

74 e.g. Duncan and Phillips (1963, 263-343); McClelland (1966, 25-50); Gornall (1964, 213).

75 c.f. Karmel and Brunt (1963, 75); Mueller and Garoian (1961, 138).

76 For the groceries trade, the change in outlet location from inner suburban to outer suburban markets and from lower order to higher order business areas, seems to be accomplished by the decline of the small store in the lowest order business areas and inner city suburbs, and by the development of new large-scale units especially by chains in upper order locations and outer suburban areas (e.g. Simmons, 1964, 98-99).

77 See note a, Figure V.4.

78 e.g. McCarty and Lindberg (1966, 107-112) who summarise in a recent undergraduate text a long tradition of 'demand - oriented' thinking about retail location by geographers. The few workers emphasising the equal importance of costs in the generation of

retail location patterns include Simmons (1964, 65-69), McClelland (1966), and Smith (1962 edn., 1-10, 107-131).

79 e.g. Bunge (1962).

80 Garner (1967).

81 pp. 224-226; 308-309.

82 The assumption of uniform market structures for the sale of each type of retail good is implicit in all the versions of central place theory which are summarised by Berry (1967, Chapters 3,4).

83 (1968).

84 (1958, especially 12-14, 16-17).

85 Clark (1961).

86 See Chapter 4, footnote 103, for a justification of this statement.

87 e.g. Duncan and Phillips (1963 edn., 107-117); Cheer (1957); Simmons (1964, 96-97, 129-133, 147-150).

88 The impact of the current organisational structure of distribution on the costs of retail outlets is generally accepted. However, the impact of the current organisational structure of distribution on all the various means of competition and on forms of market structure, and the ways in which the changes in costs and competition together affect location, have not yet been explored. The study of Hobart's groceries outlets suggests that these latter topics may form future lines of inquiry into current retail location and retail firm operations.

89 Very little research has been conducted into the influence of the suburbanisation of retailing and the development of regional shopping centres on the economics of the outlets of individual trades. The study of Hobart's groceries outlets suggests that this may provide a future line of inquiry into current retail location and retail firm operations.

90 The general questions of the present efficiency of metropolitan retailing and the ways in which it may be affected by current changes in retail location, in the means of competition, and in market structures, have not been examined. The study of Hobart's groceries outlets suggests that this may provide a future line of inquiry into current retail location and retail firm operations.

91 The following are examples of planning recommendations for one optimal size of establishment for each retail trade within a metropolitan area: McClelland (1966, 220 - 229); Brown and Sherrard (1959, 275-276); Ford and Thomas (1953, 7-18); Cullingsworth (1964, 231); Adelaide Town Planning Committee (1962, 167-170); Lock (no date, 393); Abercrombie (1945, 119).

CHAPTER 6 HOBART'S GROCERIES OUTLETS: LOCATION, PRICE, SERVICE AND RANGE OF GOODS

SYNOPSIS

MAIN CHAPTER HEADINGS

	Introduction Definitions and Measures of the Price and Non-Price Offers of Hobart's Groceries Outlets.
DESCRIPTION OF THE GROSS RELATIONS OF PRICE, SERVICE, RANGE OF GOODS AND LOCATION BY CLASS AND TYPE OF BUSINESS AREA	Location by Class of Business Area, Price, Service and Range of Goods; Implications for the Price and Non-Price offers of Outlets in Different Types of Business Area.
DESCRIPTION OF THE GROSS RELATIONS OF PRICE, SERVICE, RANGE OF GOODS AND OUTLET LOCATION BY REGIONAL MARKET	Price and Non-Price Offers and their Combinations in Different Regional Markets; Implications for the Price and Non-Price Offers of Outlets of Different Business Types.
INTERPRETATION OF THE GROSS RELATIONS OF OUTLET LOCATION, AND PRICE, SERVICE AND RANGE OF GOODS	Location Classified by Class of Business Area and Outlet Price, Service and Range of Goods. Location Classified by Regional Market and Outlet Price, Service and Range of Goods.
PRIMARY AND SECONDARY RELATIONS – LOCATION, PRICE, SERVICE AND RANGE OF GOODS	Price and Non-Price Offers, Location and Institutional Restrictions on Entrepreneurial Behaviour.
CONCLUSIONS	Implications for Future Theoretical Studies of Retail Location. Implications for Future Empirical Studies of Retail Location.

Introduction

The attempt to account for the locational structure of groceries retailing in Hobart, and for retail location in general, is continued in this Chapter. Tests are made of hypothesized relations between the locations of retail establishments, and their price offers, service offers and range of goods. At the centre of interest are the ways in which the locations of retail establishments are affected by the means of competition which entrepreneurs use over the short-and middle-run to attract customers to their establishment, and to increase per capita customer expenditures there.[1] First, an examination is made of the overall relations of the locations of Hobart's groceries outlets and outlet price, service, and range of goods. This contains a description of the ways in which the means of competition are employed in multiproduct establishments. Next, a more detailed investigation is made of the impact of other variables on the means of competition and on location. Finally, conclusions are drawn concerning the wider theoretical and empirical implications of the analysis.

Definitions and Measures of the Price and Non-Price Offers of Groceries Outlets

Different types of price and non-price offer in groceries retailing. According to Holdren, retail grocery entrepreneurs compete through the 'price' and 'non-price offers' which they make to customers.[2] 'Non-price offers' embrace the services which entrepreneurs are willing to provide in selling, and the range of goods which they stock; both types of non-price offers seem as influential as price offers in attracting customers to a retail groceries outlet, and in increasing the amount they spend there per unit time period.[3]

Price offers, price level and price structure. The price offers of a groceries outlet, as of other retail establishments, consist of, firstly, the 'overall level of prices of the establishment',[4] and secondly, the individual prices charged for the array of goods in the establishment, that is, the establishment's 'price structure'. A groceries outlet's price structure is the particular combination of prices of the establishment made up of the high, low or moderate price charged for each good stocked. The price structure affects the price level of the outlet, though the same price level may be produced by different price structures. For example, a price level which is low overall may be obtained with a price structure where all goods are sold at prices lower than elsewhere, or where goods in very high demand are sold "below cost" and the remainder at medium or high prices.[5]

Service offers: the combination of services; presence or absence of advertising, delivery, credit. The service offers of a retail groceries outlet embrace the following: the length of trading hours; the quantity and quality of personal as opposed to self-service selling; the quality of the physical selling environment

(for example, the quality of lighting and interior decoration, whether air conditioning and music and a public address system are present, the width of aisles and convenience of access to goods, the quality of fixtures used for display); the type, number and quality of the particular services which are offered to 'make it easy for customers to come and do their shopping there' (for example, free parking, credit and delivery services, cheques-cashing facilities, packing services, ancillary agencies (for example, lottery sales, bank, dry cleaning agencies)); and,lastly, services offered to inform customers of the goods, prices and services available at the outlet, namely, the quantity and quality of advertising, of promotions, and of in-store display.[6] The extent and quality of the whole combination of services offered comprises the level of service provided in the outlet.[7]

Equally as influential on customer expenditures are the presence or absence of particularly important types of customer service. These are a delivery service, consumer finance services, and the services provided by joint manufacturer-retailer advertising, promotions and display.[8]

Range of goods. The range of goods which the retailer provides embraces firstly, the number of product groups offered for sale in the outlets (for example, the number of product groups such as groceries, greengroceries, fresh meat etc.); secondly, the number of different products within each major product group (for example, the number of products in a product group like the groceries group, such as baby foods, butter, cheese, jam etc.); thirdly, the total number of goods stocked in all the products in each product group (for example, the total number of goods stocked in a product group like the groceries group, such as Heinz $3\frac{1}{2}$ oz. blue label Chicken Dinner baby food, Heinz 7 oz. blue label Chicken Dinner baby food etc.); and lastly, the way in which the total number of goods in each product group is distributed between the products comprising it (for example, the way in which the goods stocked in a product group like the groceries group is distributed between each high, medium and low demand groceries product).[9]

The combination of outlet price and non-price offers. The groceries outlet entrepreneur's decisions concerning his price offers, service offers and range of goods are not independent. For example, the lower price levels which may be gained by reduced gross margins over an extended range of goods require a revision of the level and types of services offered, in order to determine whether they can still be afforded, or whether their elimination would increase total net profits.[10] Similarly, decisions about an outlet's range of goods will influence the outlet's price structure and price level. Ultimately, it is the whole combination of price and non-price offers which attracts customers to retail outlets, which influences the amount they spend there, and which thus influences the profits of the establishment.[11]

Measures of outlet price and non-price offers for Hobart's groceries outlets. In order to examine the price offers, service offers and range of goods of Hobart's groceries outlets, the following measures were used:

Price Offers of a Groceries Outlet in the Hobart Sample[12]

(i) Price level: a relative price index combining and weighting the recorded prices[13] of all goods stocked in a sample of 14 groceries products;[14]

(ii) Price structure: the prices of 21 selected goods from within the range covered by a sample of 14 groceries products[15]; estimated average sales from cut-price 'specials';

Service Offers of a Groceries Outlet in the Hobart Sample

(i) Combination of services offered: the number and types of customer services provided,[16] total hours of trading per week; daily trading hours;

(ii) Presence or absence of important services: whether the firm conducted its own advertising with some direct assistance from manufacturers; whether the outlet entrepreneur conducted his advertising through a cooperative advertising group which negotiated direct with manufacturers; whether a delivery service was provided; whether a credit service was provided;

Range of Goods of a Groceries Outlet in the Hobart Sample

(i) Number of product groups: the total number of product groups omitted from 19 possible product groups;[17]

(ii) Number of products within product groups: number of products omitted from 138 normally stocked groceries products[18];

(iii) Total number of goods within product groups: overall range of goods index, given by the total number of goods stocked over all the 14 groceries products originally sampled to calculate the price index;

(iv) Distribution of goods between different products: total number of goods stocked in each of the groceries products sampled to calculate the price index.

All these measures provided the means of testing the hypothesized relations of retail outlet location and the means of competition by using data for Hobart's groceries outlets, the measures comprised 23 price variates (Table 6.1), seven service

attributes and one service variate (Tables 6.2 and 6.3), and 17 range of goods variates and one range of goods attribute (Tables 6.2 and 6.3).

Principal shortcomings of the measures. The difficulty of collecting data in the field confined attention to the prices and goods of a sample of only 14 groceries products to indicate a groceries outlet's price level, price structure, total number of goods within product groups, and distribution of goods between different products.[19] The product sample is very small in comparison with both the total number of groceries products and the total number of products in all product groups in a groceries outlet. The small size of the product sample clearly limits the validity of conclusions drawn about the price offers and range of goods of Hobart's groceries establishments.

In addition, a sample of only 21 goods from within the 14 sampled groceries products was used to indicate an outlet's price structure. The 21 goods were the only ones of the sample of 14 groceries products which were carried in all sampled groceries in Hobart, or for which a very close substitute was available[20]. They were therefore the only goods whose recorded prices could strictly be compared for different outlets, in order to help determine whether the entrepreneurs were pricing goods high, low or much the same as elsewhere. Fortunately, the 21 goods covered a wide range of the sample of 14 high and medium demand groceries products. But 21 goods is an exceptionally small sample of the total number of goods stocked in a groceries outlet. Consequently, the validity of conclusions concerning the price structures of Hobart's groceries outlets is called into question.

Other problems for the study of groceries outlet price and non-price offers were created by the use of an outlet price index to measure the general price level of a sampled groceries outlet in Hobart. A relative price index for a sampled outlet was provided by combining the recorded prices of all the goods stocked within the 14 sampled groceries products, using an adaption of the formula for a widely-used type of price index, the weighted aggregate of prices. This index is normally used to measure the current general level of prices in an economy relative to the level which would have existed had prices been those of some past 'base year'.[21] The relative price index for a groceries outlet in Hobart was designed in an analagous way to measure the current general level of prices in an outlet relative to the level which would have existed if the prices charged had been those recommended by the Retail Traders' Association of Tasmania[22]. The formulae for the weighted aggregate of prices and for the Hobart groceries'outlet relative price index are given in Appendix 15. The outlet relative price index indicated the proportion which the actual prices of an outlet were of Retail Traders' Association recommended prices for the same goods. For example, a relative price index of .950 suggested that an outlet's prices were about 95% of current R.T.A. prices. It followed that the difference between the relative price indices of two outlets indicated the differences in their price levels; for example, an outlet with a relative price index of .950 had

prices generally about 5% lower than an outlet of an index of .999. Given that most goods sold in a groceries outlet are less than $1.00, an overall reduction of this order could be deemed to reflect very significant reductions in the prices of individual goods.

The principal deficiency of the outlet relative price index was that, although the same list of products (baby foods, margarine etc.) was used for the calculation of the index for each outlet, the same list of goods (for example, Heinz $4\frac{1}{2}$ oz. blue label Chicken Dinner baby food) was not. Strictly, because the 'basket of goods' priced was not identical in each outlet, the price indices for different outlets were not strictly comparable. But as the combination of goods stocked within each product (for example, the varieties of tinned jam) were not identical in each groceries outlet in Hobart, it was not possible to use a specified basket of goods which would represent an adequate sample of the groceries lines in each outlet, and which would in addition be stocked by every outlet. Nevertheless, the goods priced in each product (for example, the varieties of tinned jam) appeared such close substitutes thatthe price indices of different outlets derived from them would still be legitimately compared.

Turning finally to the deficiencies of the list of measures of the service offers of Hobart's groceries outlets, no way at all could be found to measure and to include certain groceries outlet services, for example, the type of interior decoration of an establishment. Certain other services which could have been measured, for example, accessibility to goods in the store given by aisle widths, could not be studied for want of time. Lastly, there was no way of taking into account the quality of the services which were included, for example, the quality of personal selling. The exclusion of some types of service and of quality of service from the study of the service offers of Hobart's groceries outlets limits the validity of conclusions drawn regarding outlet service offer combinations.

TABLES 6.1 - 6.6

TABLE 6.1.(i)

SUMMARY OF THE RESULTS OF ANALYSIS OF VARIANCE TESTS OF THE ASSOCIATION OF OUTLET PRICE LEVEL AND PRICES WITH (1) OUTLET LOCATION AND (2) TYPE OF OUTLET AND OUTLET LOCATION

PRICE VARIATE[a]	ALL GROCERIES OUTLETS				SUPERMARKETS			GROCERIES			GENERAL STORES		
	BY BUS. TYPE (SM, Gro GEN)	BY LOCATION IN BA TYPE (N, J)	BY LOCATION IN BA CLASS (N-J 4)	BY LOCATION IN REGNL MKT.	BY LOCATION IN BA TYPE (N, J)	BY LOCATION IN BA CLASS (N-J 4)	BY LOCATION IN REGNL MKT.	BY LOCATION IN BA TYPE (N, J)	BY LOCATION IN BA CLASS (N-J 4)	BY LOCATION IN REGNL MKT.	BY LOCATION IN BA TYPE (N, J)	BY LOCATION IN BA CLASS (N-J 4)	BY LOCATION IN REGNL MKT.
1. RELATIVE PRICE INDEX	/	o	/	-	-	-	o	-	/	o	-	-	/
2. Price(c): Tinned baby food line	/	/	/	/	-	-	-	-	o	x	/	/	/
3. " Biscuit line (Brockhoffs)	o	-	-	o	-	-	-	-	-	-	/	x	-
4. " Biscuit line (Swallows)	/	/	x	/	-	-	-	-	-	-	/	-	-
5. " Biscuit line (Arnotts)	/	/	x	/	-	-	-	-	-	-	/	x	/
6. " Tinned spaghetti line	/	/	/	x	-	-	-	-	-	-	/	/	o
7. " Margarine line	/	/	/	/	-	-	-	-	o	/	x	/	/
8. " Tinned evap. milk line	/	-	x	-	-	-	-	-	-	o	-	-	/
9. " Tinned condensed milk line	/	-	/	-	-	-	-	-	-	o	x	/	/
10. " Tea line	/	-	-	/	-	-	-	-	-	x	-	/	x
11. " Tinned fish line	-	-	o	/	-	-	-	-	-	/	-	o	/
12. " Dried fruits line	/	/	/	/	-	-	-	-	-	/	/	/	/
13. " Tinned meat line (hot)	/	-	/	/	-	-	-	-	-	-	/	/	/
14. " Tinned meat line (cold)	/	/	/	/	-	-	-	-	o	-	x	/	/
15. " Bottled sauces line (IXL)	/	x	/	o	-	-	-	-	/	-	o	/	/
16. " Bottled sauces line (Holbrooks)	/	/	/	/	-	-	-	-	o	/	/	/	x
17. " Tinned soup (Heinz)	/	/	/	o	-	-	-	-	-	-	/	/	/
18. " Tinned soup (Campbells)	/	-	o	/	o	-	-	-	-	-	-	x	/
19. " Jams (IXL)	/	/	/	/	-	-	-	o	/	o	/	/	/
20. " Jams (Cottees)	/	/	/	/	-	-	-	-	-	/	/	/	/
21. " Tinned peas line	/	/	/	/	-	-	-	-	-	/	/	/	/
22. " Sugar line	Insufficient variation for estimation of F ratio												
23. Av. % takings from specials	/	x	/	/	-	-	-	-	/	/	/	/	-

/ F significant at 1% level) Strong relation
x F significant at 5% level)
o F significant at 10% level

a Details of the goods mentioned in variates 2-22 are contained in Statistical Appendix 4 - Tables 4.25 to 4.45.

\- F not significant at 10% level

Sources: Statistical Appendix 4 - Tables 4.24 to 4.46; computer output for individual business types held by author.

TABLE 6.1.(ii)

RANK ORDER OF THE MEAN VALUES OF PRICE VARIATES FOR THE OUTLETS IN EACH CLASS OF BUSINESS AREA AND REGIONAL MARKET
(HIGHEST VALUE = 1)

	PRICE VARIATE[a]	RANK OF MEAN VALUES FOR OUTLETS IN Business Area Class								Regional Market					
		N1	N2	N3	N4	J1	J2	J3	J4	CC	NH	M	G	SB	B
1.	RELATIVE PRICE INDEX	7	4	3	2	6	8	5	1	2	5	6	1	4	3
2.	Price(c): Tinned baby food line	6	7	2	1	5	8	4	3	3	2	5	4	1	6
3.	" Biscuit line (Brockhoffs)	*7	5	6	3	2	8	4	1	*3	1	2	4	5	6
4.	" Biscuit line (Swallows)	4	2	3 eg	1 eg	5 eg	5 eg	5 eg	1	5 eg	1	2	3	4 eg	1
5.	" Biscuit line (Arnotts)	4	3	7	2	6	8	5	1 eg	4	3	5	1 eg	4	2
6.	" Tinned spaghetti line	7	3	6	1	4	8	2	5	1	4	3	2	5	6
7.	" Margarine line	2	3	1	4	7	8	5	6	4	2	6	1	5	3
8.	" Tinned evap. milk line	7	3	5	2	6	8	4	1	*2	1	4	3	6	5
9.	" Tinned condensed milk line	7	6	5	2	3	8	4	1	*2	3	5	1	6	4
10.	" Tea line	*7	2	3	4	6	8	5	1	2	6	5	4	3	1
11.	" Tinned fish line	*8	5	7	2	6	1	4	3	3	1	4	2	5	6
12.	" Dried fruits line	4	5	3	2	8	7	1	6	5	4	6	3	2	1
13.	" Tinned meat line (hot)	6	2	4	5	3	7	8	1	3	4	2	1	5	6
14.	" Tinned meat line (cold)	5	6	3	2	7	8	4	1	5	2	1	3	4	6
15.	" Bottled sauces line (IXL)	5	4	7	1	3	8	2	6	*3	2	6	1	4	5
16.	" Bottled sauces line (Holbrooks)	3	4	2	1	8	7	5	6	6	4	2	5	3	1
17.	" Tinned soup (Heinz)	6	4	3	2	7	8	5	1	*2	5	6	1	4	3
18.	" Tinned soup (Campbells)	*7	6	3	4	2	8	5	1	1	5	6	4	3	2
19.	" Jams (IXL)	5	6	1	3	8	4	7	2	5	1	2	3	4	6
20.	" Jams (Cottees)	4	2	1	5	7	3	6	8	4	2	5	6	3	1
21.	" Tinned peas line	3	8	5	1	4	7	6	2	3	4	1	2	6	5
22.	" Sugar line (b)	*eg 1 eg	1 eg	1 eg	1 eg	1 eg	1 eg	1 eg	1	2 eg	1 eg	1 eg	1 eg	1 eg	2
23.	Av. % takings from specials	2	4	6	3	5	1	7	8	4	5	3	1	6	2

* Good where price does not show an association with outlet location which is statistically significant at the 5% level

a Details of the goods mentioned in variates 1-22 are contained in Statistical Appendix 4 - Tables 4.25 to 4.45

b Price controlled by C.S.R., although there was some local price cutting by outlets of class J4 in the Bellerive market.

Sources: Statistical Appendix 4 - Tables 4.24 to 4.46; computer output for individual business types held by author.

TABLE 6.2.(i)

SUMMARY OF THE RESULTS OF ANALYSIS OF VARIANCE TESTS OF THE ASSOCIATION OF OUTLET SERVICE AND RANGE OF GOODS WITH (1) OUTLET LOCATION AND (2) TYPE OF OUTLET AND OUTLET LOCATION

SERVICE/RANGE OF GOODS AND PRODUCTS VARIATE	ALL GROCERIES OUTLETS BY LOCATION IN				SUPERMARKETS BY LOCATION IN			GROCERIES BY LOCATION IN			GENERAL STORES BY LOCATION IN		
	BUS TYPE (SM,Go GEN)	BA TYPE (N,J)	BA CLASS (N1J4)	REGNL MKT.	BA TYPE (N,J)	BA CLASS (N1J4)	REGNL MKT.	BA TYPE (N,J)	BA CLASS (N1J4)	REGNL MKT.	BA TYPE (N,J)	BA CLASS (N1J4)	REGNL MKT.
SERVICE													
1. Dst. av.$ goods sold self serve	/	-	/	-	-	-	-	-	/	/	/	/	-
RANGE OF GOODS													
1. Total product groups omitted	0	/	/	/	-	-	-	-	-	o	/	/	/
2. Total products omitted	/	o	/	/	-	-	-	-	-	o	x	/	/
3. Overall range of goods index	/	-	/	-	-	-	-	-	-	/	/	/	x
4. Range of goods: baby foods	/	o	/	-	-	-	-	-	-	-	x	x	/
5. Range of goods: biscuits	/	-	/	-	-	-	-	-	-	/	/	x	/
6. Range of goods: spaghetti (tinned)	/	-	/	-	-	-	-	-	-	x	x	/	/
7. Range of goods: margarine	/	x	/	/	-	-	-	-	-	-	/	/	/
8. Range of goods: milk (cond. evap.)	/	-	/	-	-	-	-	-	-	-	-	/	x
9. Range of goods: tea	/	-	/	-	-	o	-	-	-	-	-	/	-
+ x 10. Range of goods: fish (ind. herrings)	/	-	/	-	-	x	/	-	o	/	-	-	/
11. Range of goods: fruit (dried)	o	-	/	o	-	-	-	-	-	/	/	/	/
12. Range of goods: meats (tinned)	/	-	/	o	-	-	-	-	-	o	-	/	x
13. Range of goods: sauces (bottled)	/	-	/	x	-	-	-	-	o	o	/	/	/
14. Range of goods: soups (tinned)	/	-	/	-	-	-	-	-	/	/	-	/	-
15. Range of goods: jams	/	/	/	/	-	-	-	-	-	/	/	x	/
16. Range of goods: sugar	/	o	-a	-	-	-	o	o	-	o	/	x	/
17. Range of goods: Vegetables (tin peas)	/	-	/	-	-	-	-	-	-	x	o	x	-

/ F significant at 1% level) Strong
x F significant at 5% level) relation

o F significant at 10% level
- F Not significant at 10% level

ources: Statistical Appendix 4 - Tables 4.47 to 4.64, computer output for individual business types held by author.

TABLE 6.2.(ii)

RANK ORDER OF MEAN VALUES OF SERVICE AND RANGE OF GOODS VARIATES FOR THE OUTLETS OF EACH CLASS OF BUSINESS AREA AND REGIONAL MARKET (HIGHEST VALUE = 1)

SERVICE/RANGE OF GOODS AND PRODUCTS VARIATE	RANK OF MEAN VALUES FOR OUTLETS IN Business Area Class								Regional Market					
	N1	N2	N3	N4	J1	J2	J3	J4	CC	NH	M	G	SB	B
SERVICE														
1. Est. av. % goods sold self serve	2	3	6	8	5	1	4	7	3	4	5	6	2	1
RANGE OF GOODS														
1. Total product groups omitted	7	2	3	4	8	1	5	6	5	6	3	1	4	2
2. Total products omitted	5	7	3	6	2	8	4	1	1	4	3	6	2	5
3. Overall range of goods index	2	4	6	7	5	1	3	8	*5	6	4	3	1	2
4. Range of goods: baby foods	2	3	7	6	4	1	5	8	*4	6	5	2	3	1
5. Range of goods: biscuits	2	4	6	7	5	1	3	8	*4	6	3	5	1	2
6. Range of goods: spaghetti (tinned)	3	4	6	7	5	1	2	8	*4	6	5	3	2	1
7. Range of goods: margarine	4	2	7	5	3	1	6	8	4	6	5	2	3	1
8. Range of goods: milk (cond. evap.)	2	4	7	6	3	1	5	8	*5	6	4	3	2	1
9. Range of goods: tea	4	3	6	7	5	1	2	8	*3	5	4	6	1	2
10. Range of goods: fish (ind. herrings)	5	8	7	6	3	1	2	4	*3	6	5	2	1	4
11. Range of goods: fruit (dried)	3	5	7	4	8	1	2	6	*6	3	5	4	2	1
12. Range of goods: meats (tinned)	3	5	7	6	4	1	2	8	*4	5	6	2	1	3
13. Range of goods: sauces (bottled)	2	4	5	7	6	1	3	8	6	4	3	5	1	2
14. Range of goods: soups (tinned)	2	5	6	7	4	1	3	8	*4	3	6	5	1	2
15. Range of goods: jams	4	5	7	6	2	1	3	8	3	5	6	4	2	1
16. Range of goods: sugar	*3	4	7	6	5	1	2	8	*5	1	6	3	4	2
17. Range of goods: vegetables (tin peas)	2	4	5	7	3	1	6	8	*3	5	6	4	2	1

* Range of goods variate which does not have a relation with outlet location which is statistically significant at the 5% level

Sources: Statistical Appendix 4 - Tables 4.47 to 4.64.

TABLE 6.3

SUMMARY OF THE RESULTS OF χ^2 TESTS OF THE ASSOCIATION OF OUTLET SERVICE AND RANGE OF GOODS WITH (1) OUTLET LOCATION AND (2) TYPE OF OUTLET AND OUTLET LOCATION

SERVICE/RANGE OF GOODS AND PRODUCTS ATTRIBUTES	ALL GROCERIES OUTLETS BY: BUS. TYPE (SM, GRO, GEN)	LOCATION IN B.A. TYPE (N,J)	LOCATION IN B.A. CLASS (N1-N4, J1-J4)	LOCATION IN REGIONAL MARKET (CC, NH,M,G,SB,B)	GENERAL STORES BY LOCATION IN B.A. TYPE (N, J)	LOCATION IN B.A. CLASS (N1-N4, J1-J4)	LOCATION IN REGIONAL MARKET
SERVICE							
1. Customer services provided	No χ^2 analysis				No χ^2 analysis		
(a) Whether independent advert. used or not	/	-	(/)	(-)	Fail	Fail	Fail
(b) Whether coop. advert. used or not	/	-	/	(-)	Fail	Fail	Fail
(c) Whether delivery service or not	/	x	x	x	x	Fail	Fail
(d) Whether credit service or not	(/)	(o)	(o)	(x)	Fail	Fail	Fail
2. Total hours of trading per week	No χ^2 analysis				No χ^2 analysis		
3. Daily trading hours	No χ^2 analysis				No χ^2 analysis		
RANGE OF GOODS							
1. Product groups stocked	No χ^2 analysis				No χ^2 analysis		

/ χ^2 significant at 1% level) strong
x χ^2 significant at 5% level) relation
0 χ^2 significant at 10% level
- χ^2 not significant at 10% level

(x) Proportion of contingency table cells which had expected frequencies < 5 exceeded 0.20, although no cells had EF = 0

No χ^2 analysis/Fail: Sample too small in relation to number of contingency table cells to attempt χ^2, or to provide satisfactory results χ^2 attempted.

Sources: Statistical Appendix 5 - Tables 5.9 to 5.12; computer output for individual business types held by author.

TABLE 6.4

PRICE AND NON-PRICE OFFERS FOR OUTLETS IN BUSINESS AREA CLASSES

OUTLETS IN BUSINESS AREA CLASS	PRICE OFFERS: PRICE LEVEL: MEAN PRICE RELATIVE INDEX	PRICE OFFERS: PRICE LEVEL: MEAN EST. OVER-ALL GROSS MARGIN % TAKINGSa	PRICE OFFERS: PRICE STRUCTURE: PRICE (c) TINNED BABY FOOD LINE	PRICE OFFERS: PRICE STRUCTURE: MARGARINE LINE	PRICE OFFERS: PRICE STRUCTURE: PRICE (c) DRIED FRTS LINE	PRICE OFFERS: PRICE STRUCTURE: JAM LINE (IXL)	MEAN % TKGS FROM SPECIALS b	SERVICE OFFERS: MISCELLANEOUS SERVICES: MEAN AV.% GOODS SOLD SELF SRVCE	Pn OUTLETS WITH CAR PARK	Pn OUTLETS WITH AGNCs (Bank)	Pn OUTLETS WITH SHOP. COMFORT SRVCE (Music)	Pn. OUTLETS OPEN 60 HRS/WEEK	SERVICE OFFERS: IMPORTANT SERVICES: Pn OUTLETS INDEPNDNT ADVG	Pn OUTLETS CENTRLSD ADVG	Pn OUTLETS DELIVERY SRVCE	Pn OUTLETS CREDIT SRVCE	MEAN AMOUNT OUT ON CREDIT ($A)
N1	.967	21	9.2	39.0	29.6	28.1	7.1	44.4	.26	.16	.42	.32	.32	.63	.68	.63	163
N2	.978	24	9.1	38.6	28.8	27.8	6.2	42.5	.22	.22	.48	.48	.35	.65	.86	1.00	601
N3	.981	23	10.0	39.3	29.1	29.3	4.7	12.4	.21	.18	.24	.47	.05	.24	.89	.87	341
N4	.990	25	10.2	38.4	29.9	28.6	6.5	5.7	.18	.20	.09	.56	.03	.11	.86	.92	634
J1	.969	14	9.3	36.2	25.8	26.8	5.4	25.7	.11	.00	.28	.00	.28	.11	.88	.83	91
J2	.944	22	7.0	35.8	27.1	28.3	15.0	95.0	1.00	.50	1.00	.00	1.00	.50	.50	.50	1000
J3	.974	24	9.5	38.3	30.0	27.1	3.6	32.1	.00	.00	.28	.25	.00	.29	.75	1.00	819
J4	.991	30	9.6	37.3	27.5	29.1	1.0	6.3	.13	.06	.06	.88	.06	.00	.50	1.00	470

a Table 5.3; 100 (1 - Mean ratio, costs of goods sold /takings).

b Estimates for individual outlets were no better than rough guesses by entrepreneurs, especially for the outlets in lower order business areas, where no records at all were kept. The anomalous estimate for the outlets of class N4 of an average of 6.5% of takings from specials is most probably the result of inaccurate reporting.

Sources: Statistical Appendix 4 - Tables 4.11, 4.24, 4.25, 4.30, 4.35, 4.46;
Statistical Appendix 5 - Table 5.9.

(Cont.)

TABLE 6.4 (Cont.)

PRICE AND NON-PRICE OFFERS FOR OUTLETS IN BUSINESS AREA CLASSES

OUTLETS IN BUSINESS AREA CLASS	RANGE OF GOODS: MEAN TOTAL PRODUCT GROUPS OMITTED	Pn OUTLETS STOCKING MEDIC-INAL, TOILET BEAUTY PR.	Pn OUTLETS STOCKING SOFT DRINKS ETC. (MILK BARS)	Pn OUTLETS STOCKING H'HOLD CLEAN-ING AIDS	MEAN TOTAL PRODUCTS OMITTED	MEAN OVERALL RANGE OF GOODS INDEX	MEAN RANGE OF GOODS: BABY FOODS	MARGAR-INE	DRIED FRUITS	SAUCES (BOTT-LED)	SOUPS (TIN-NED)	TINNED PEAS
N1	7.1	.89	.05	.32	27.5	331	75	4.9	7.0	15.6	31.3	5.8
N2	9.0	1.00	.13	.13	25.0	253	52	5.1	6.4	11.8	21.5	5.2
N3	8.4	1.00	.00	.26	30.9	177	31	4.3	6.2	9.6	15.9	4.3
N4	8.3	.96	.12	.44	27.4	165	34	4.8	6.6	8.2	15.4	3.9
J1	6.8	1.00	.00	.44	35.2	220	41	4.9	5.4	9.3	23.7	5.2
J2	9.5	1.00	.00	1.00	6.5	697	159	6.5	12.0	34.5	65.0	9.0
J3	8.3	1.00	.13	.13	28.5	259	38	4.6	7.9	13.4	29.8	4.8
J4	7.3	1.00	.13	.81	37.5	130	16	3.0	6.2	6.3	13.4	3.1

Sources: Statistical Appendix 4 - Tables 4.48 to 4.51, 4.54, 4.58, 4.60, 4.61, 4.64;
Statistical Appendix 5 - Table 5.12.

TABLE 6.5

PRICE AND NON-PRICE OFFERS FOR OUTLETS IN REGIONAL MARKETS

OUTLETS IN REGIONAL MARKET	TYPE OF MARKET	MEAN AV.WKLY TAK-INGS ($A)	MEDIAN ANNUAL AGGRE-GATE H'HOLD" INCOME (a) ($A)	MEAN AUTOS/ DWG UNIT (a)	STUDENTS TO POP-ULATION RATIO (a)	Pn ENTRE PRNRS FEAR. COMP. RETALN	Pn HAVING < 5 COMPE-TITORS	Pn TAKING COMPS. POLIC-IES INTO A/C	PRICE LEVEL MEAN RELA-TIVE PRICE INDEX	PRICE LEVEL MEAN EST. OVER-ALL GROSS MARGIN % TAK-INGS (b)	PRICE STRUCTURE - MEAN PRICE (c) TINNED BABY FOOD LINE	PRICE (c) MARGA-RINE LINE	PRICE (c) DRIED FRUITS LINE	PRICE (c) JAM LINE (IXL)	% TAKINGS FROM SPECIALS
C.CITY)	Inner Sub-	1084	2408	.97	.20	.07	.40	.49	.985	24	9.8	37.8	28.2	28.0	4.0
N.HOBART)	urban	774	2720	1.11	.23	.01	.32	.71	.979	22	10.3	38.7	28.8	29.2	4.0
MOONAH)		1182	2600	1.03	.23	.19	.67	.70	.977	18	9.2	37.0	27.6	28.5	7.0
G'ORCHY)	Outer Sub-	1337	2834	1.04	.26	.03	.87	.46	.990	24	9.5	40.7	29.9	28.2	10.7
S.BAY)	urban	2192	3536	1.40	.21	.18	.93	.37	.981	29	10.9	37.2	30.1	28.1	3.5
B'RIVE)		1223	2808	.81	.25	.00	.93	.25	.982	26	9.1	38.2	30.1	27.7	7.9

____ Value reflecting specialisation in price competition

a Refer to Chapter Two and Appendix 2 for details of the calculation of these figures.

b 100 (1 - Mean ratio, costs of goods sold/takings); Table 5.5.

Sources: Table 2.17; Statistical Appendix 4 - Tables 4.1, 4.24, 4.25, 4.30, 4.35, 4.42, 4.46; Statistical Appendix 5 - Tables 5.2 to 5.4.

(Cont.)

TABLE 6.5 (Cont.)

PRICE AND NON-PRICE OFFERS OF OUTLETS IN REGIONAL MARKETS

OUTLETS IN REGIONAL MARKET	TYPE OF MARKET	PERSONAL SERV. MN.AV. % GOODS SOLD SELF-SRVCE	PERSONAL SERV. MN. AV. WKLY WAGES ($A)a	SERVICE OFFERS: MISCELL.MINOR SERVICES Pn OUTLETS WITH CAR PARK	Pn OUTLETS WITH AGENCIES eg Bank	Pn OUTLETS WITH SHOPPER COMFORT SRVCES	TR.HOURS Pn OUTLETS OPENING > 60 HRS PER WEEK	IMPORTANT SERVICES Pn OUTLETS INDEP-ENDENT ADVERT.	Pn OUTLETS CENTRA-LISED ADVERT.	MEAN AV.WKLY ADVERT. EXP. ($A)a	Pn OUTLETS DELIVERY SERVICE	Pn OUTLETS CREDIT SERVICE	MEAN AMOUNT OUT ON CREDIT ($A)a
C.CITY)	Inner	17.0	63	.05	.04	.22	.37	.10	.19	10b	.80	.88	246
N.HOBT)	Subn.	14.9	47	.01	.18	.15	.43	.08	.21	2	.79	1.00	473
MOONAH)		12.4	58	.22	.12	.22	.45	.13	.16	9	.60	.73	365
G'ORCHY)	Outer	12.2	56	.70	.38	.19	.34	.13	.35	10	1.00	.94	888
S.BAY)	Subn.	32.7	147	.18	.12	.18	.06	.19	.25	18c	.90	.75	719
B'RIVE)		37.6	86	.31	.18	.50	.06	.25	.50	6	.93	1.00	470d

__ Value reflecting specialisation in a particular type of service

a From Table 5.5.

b In the Central City market, only the relatively small proportion of outlets which are located in the C.R.A., specialise in the heavy use of independent or centralised advertising. They do so to reach customers in whole of the city as well as in the Central City market.

c The relatively high proportion of outlets in the Sandy Bay market which use indèpendent or centralized advertising, and the high level of mean outlet advertising expenditures, reflect the fact that the most use of advertising as a means of competition is made in this market.

d Despite the fact that all outlets in the Bellerive Market offer a credit service, in general, entrepreneurs are only willing to credit amounts which are small on the average in absolute terms, and which are particularly small in relation to outlet sales. Thus entrepreneurs in this market do not specialise in the provision of credit services to the extent that the entrepreneurs of the North Hobart and Glenorchy markets do.

Sources: Statistical Appendix 4 - Table 4.47; Statistical Appendix 5 - Tables 5.9, 5.10.

(Cont.)

TABLE 6.5 (Cont.)

PRICE AND NON-PRICE OFFERS OF OUTLETS IN REGIONAL MARKETS

OUTLETS IN REGIONAL MARKET	TYPE OF MARKET	RANGE OF GOODS						MEAN RANGE OF GOODS:					
		MEAN TOTAL PRODUCT GROUPS OMITTED	Pn OUTLETS STCKNG MEDICINAL, TOILET, BEAUTY PR.	Pn OUTLETS STCKNG MILK BAR PRDCTS	Pn OUTLETS STCKNG H'HOLD CLEANING AIDS	MEAN TOTAL PRDCTS OMITTED	MEAN OVERALL RANGE OF GOODS INDEX	BABY FOODS	MARGARINE	DRIED FRUITS	SAUCES (BOTTLED)	SOUPS (TINNED)	JAMS
C.CITY	Inner	7.7	1.00	.97	.38	33.0	186	34.4	4.6	6.1	8.2	18.9	26.7
N.HOBT	Subn.	7.5	1.00	.84	.39	27.7	186	27.8	4.2	6.6	9.8	19.4	20.1
MNAH	Outer	8.3	.93	.67	.19	31.3	190	31.4	4.4	6.2	10.0	15.6	17.1
G'ORCHY		9.5	.87	.84	.40	20.5	209	41.6	5.1	6.3	9.7	16.4	21.0
S.BAY	Sub-	8.1	1.00	.81	.18	31.9	269	36.5	4.9	7.3	14.8	27.7	30.1
B'RIVE	urban	8.8	1.00	.62	.32	26.4	256	54.9	5.8	8.1	12.4	22.2	30.4

— Value reflecting different kinds of specialisation in diversification of range of goods

Sources: Statistical Appendix 4 - Tables 4.48 to 4.50; 4.51; 4.54; 4.58; 4.60 to 4.62; Statistical Appendix 5 - Table 5.12.

TABLE 6.6

PRICE AND NON-PRICE OFFERS OF SUPERMARKETS, GROCERIES AND GENERAL STORES

TYPE OF BUSINESS	SM	GRO	GEN
SCALE Mean Av. Wkly Takings ($A)	9002	1676	574
PRICE OFFERS 1. PRICE LEVEL Mean Relative Price Index	.934	.966	.990
Mean Overall Gross M; % Takings (a)	16	24	24
2. PRICE STRUCTURE Price(c) Tinned Babyfood line	7.4	9.2	10.1
Price(c) Margarine line	35.7	38.9	38.3
Price(c) Dried Fruits line	27.0	29.7	28.8
Price(c) Jam line (IXL)	27.8	28.0	28.6
Mean % Takings from Specials	12.3	10.3	4.2
SERVICE OFFERS 1. MISCELLANEOUS SERVICES Mean Av.% Goods Sold Self Serve	97.2	51.1	4.2
Pn Outlets with Car Park	.55	.40	.11
Pn Outlets with Agencies (eg Bank)	.11	.20	.02
Pn O/l Shopper Comfort Service(music)	1.00	.57	.08
Pn Outlets Opening 60 hrs per week	.00	.11	.59
2. IMPORTANT SERVICES Pn Outlets Independent Advertising	1.00	.39	.00
Pn Outlets Centralised Advertising	.78	.77	.06
Pn Outlets, Credit Service	.22	.91	.89
Pn Outlets, Delivery Service	.33	.93	.81

TYPE OF BUSINESS	SM	GRO	GEN
RANGE OF GOODS MEAN TOTAL PRODUCT GROUPS OMITTED	8.7	8.6	7.9
Pn Outlets stocking Hot Takeaway Foods	.00	1.00	.12
Pn Outlets stocking Household Hardware	1.00	.75	.69
Pn Outlets stocking Drapery, Manchester	.56	.50	.14
MEAN TOTAL PRODUCTS OMITTED	6.9	17.5	33.4
MEAN OVERALL RANGE OF GOODS INDEX	660	319	144
MEAN RANGE OF GOODS: 1. Babyfood	173	65	31
2. Margarine	6.1	5.6	4.3
3. Dried Fruits	9.2	6.8	6.3
4. Sauces (Bottled)	26.0	14.7	7.7
5. Soups (Tinned)	62.9	31.0	13.4
6. Tinned Peas	8.1	5.8	3.8
SOURCE OF SUPPLY Pn Entrepreneurs bulk buying direct from manufacturer	1.00	.14	.00
COMPETITION. Pn Entrepreneurs max. profits	1.00	.45	.38
CUSTOMER CHARACTERs. Mean Av. No. Persons per Household	3.72	3.66	3.84
Mean Av. No. Juveniles per Household	1.10	1.31	1.24
Mean Av. Income ($) per person per household	857	934	862
Mean Av. Persons per Auto per household	3.74	3.44	3.79

a 100(1-Mean ratio, costs of goods sold/takings); Table 5.7.

Sources: Statistical Appendix 4 - Tables 4.1, 4.24, 4.25, 4.30, 4.35, 4.42, 4.46 and4.47 to 4.51, 4.54, 4.58, 4.60, 4.61, 4.64;

Statistical Appendix 5 - Tables 5.7, 5.9, 5.10, 5.12, 5.18;

Statistical Appendix 5 - Tables 5.1 to 5.3, 5.5.

DESCRIPTION OF THE GROSS RELATIONS OF PRICE, SERVICE, RANGE OF GOODS AND LOCATION BY CLASS AND TYPE OF BUSINESS AREA

The measures of outlet price and non-price offers altogether constituted a set of 49 variates and attributes whose gross relations with outlet location classified by class and type of business area were first examined. Statistical Appendix 4- Tables 4.26 to 4.64, and Statistical Appendix 5 - Tables 5.9 to 5.12 contain the detailed results of the statistical analysis of the data for the 49 variates and attributes for Hobart's groceries outlets. A summary of the results is contained here in Tables 6.1 to 6.6.

Location by Class of Business Area, Price, Service and Range of Goods

Tables 6.1 to 6.4 show that particularly strong predictable relations exist between the price-and non-price offers of Hobart's groceries outlets, and their locations by class of business area. The existence of these relations gives support to one of the principal propositions of the first and main hypothesis of this work: "that the locations of the establishments of a retail trade become significantly interrelated in predictable ways with their price, service and range of goods characteristics".

The Price Offers of Outlets in Different Classes of Business Area

Both outlet price levels and price structures vary systematically with outlet location by class of business area. Overall outlet price level (mean outlet relative price index) declines constantly with change in outlet location from lowest order (N4, J4) to highest order (N1, J2, J1) business areas. The lowest price levels occur for the largest scale outlets of the regional shopping centre of Sandy Bay (Class J2), which is the centre of the regional market with the highest customer incomes. The mean relative price index for the outlets in this high order business area (.944) represents about a 5% reduction overall in prices from those of the outlets in the lowest order business areas (indices, .990, .991). The decline in outlet price levels from lower order to higher order business areas is parallelled by a consistent reduction in overall gross profit margins[23]. (Tables 6.1, 6.4).

The changes in price levels and margins may be effected by differences between the price structures of groceries outlets in different classes of business area. The prices of individual goods stocked within a majority of products appear to differ with a change in outlet location from lower order to higher order business areas. There is evidence that the differences in the prices of goods within each product are brought about in three ways.

Firstly, price differences of the goods stocked within

a product are brought about by differences in the product 'price-mix' which arise from the different types and numbers of goods within the product. In Hobart, there are significant differences between the outlets of each business area class in the number of different goods stocked within each of 13 sampled products (Table 6.2. (i), 6.4). Secondly, price differences are brought about by changes in the extent to which goods within a product are used as cut-price 'specials'. In Hobart, groceries outlet entrepreneurs in upper order business areas use selected goods from a wide range of products to a much greater extent than do entrepreneurs of lower order business areas (Table 6.4). A good is used as a special by outlets in upper order business areas, firstly, because its purchase price can be lowered by direct negotiations with manufacturers to offset its retail price reduction, and, secondly, because sales of a sufficiently wide range of related goods can be increased, with or without price increases, to more than offset any "losses" on the 'special'[24].

Lastly, alterations in the prices of the same few high and medium demand goods which are stocked in all outlets provide a way in which the prices of goods within a product may be changed. In Hobart, the prices of 16 of 21 such goods showed associations with outlet location by class of business area which were statistically significant at the 5% or 1% level (Table 6.1.(i)). But the sorts of change which occur in the prices of each of these goods is at first sight surprising. For the largest scale outlets of the upper order business areas (N1, J1, J2) — whose entrepreneurs buy goods for sale at the lowest prices and offer the lowest overall price levels, and whose entrepreneurs indulge in the most aggressive oligopolistic competition — do not consistently have the lowest prices for each of the 16 goods, although they have the lowest prices for many of them. And the smaller scale outlets of the lower order business areas (N2 to N4, J3, J4) — whose entrepreneurs buy goods at higher prices and offer higher overall price levels, and whose entrepreneurs are less competitive — do not consistently have higher prices for each of the 16 goods, although they have higher prices for many of them (Table 6.1. (ii)).[25] This suggests that price discrimination may be practised in the outlets of each business area class in connection with the pricing of at least some goods. Entrepreneurs take advantage of any known price elasticities and cross-price elasticities of demand for the different goods in their range to choose a combination of relatively low or medium prices which will maximise sales and profits. Unfortunately, because of the limited sample of 16 goods used here, no answer can be given from the data in Table 6.1.(ii) to the question of the forms which price discrimination may take, and which goods may be involved, in the outlets of different classes of business area.[26, 27]

The Non-Price Offers of Outlets in Different Classes of Business Area

In addition to differences in outlet price offers, there are differences in service offers between the outlets of higher and

lower order business areas. However, the differences in service offers are not as marked as the differences in price offers (Tables 6.2 to 6.4). In general, less service and fewer of the important groceries outlet services seem to be provided in the outlets of the upper order business areas. There is less personal and more self-service selling, a lower proportion of outlets are open long hours (over 70 hours a week) and fewer outlets provide the traditional credit and delivery services. However, the provision of a few particular types of service is extended, especially the very important one of retailer-manufacturer advertising. Types of service which add to the physical comfort of shoppers (for example, air-conditioning) are also extended. In addition, some of the outlets of particular upper order business areas specialise in certain services to cater for the distinctive needs of their customers; for example, the outlets of the upper order business area of Sandy Bay (J2) offer car-parking facilities and credit to their upper-income car-owning customers. The extension of particular types of service in the outlets of upper order business areas, and the specialisation of outlets of certain upper order shopping centres in particular services, tends to blur the general trend towards a decline in service provision with change in outlet location from lower order to higher order business areas.

In contrast, the ranges of goods of the outlets in different classes of business area are clearly differentiated. All but one of the variates which describe outlet range of goods has an association with outlet location by class of business area which is statistically significant at the 1% level (Table 6.2. (i)).[28] In general, the outlets of the upper order business areas have a much more diversified range of goods than those of lower order business areas (Tables 6.2. (ii), 6.4). However, the outlets of each of the three upper order business area classes diversify their range of goods in three distinctive ways.

The entrepreneurs of the regional suburban centres of class N1 diversify firstly by increasing the number of major product groups which they stock, although the types of product group added in the case of each outlet appear to be different (Tables 6.2. (ii), 6.4; Statistical Appendix 5- Table 5.12). Secondly, the entrepreneurs in business area class N1 diversify by greatly increasing the sum total of goods within each major product group — or at least within the groceries product group — while keeping the total number of products at less than that stocked by outlets in some lower order business areas (Tables 6.2. (ii), 6.4). Less profitable products therefore appear to be weeded out, and shelf-space is devoted to lines of new product groups, and to an increased variety of goods within the most profitable products in existing product groups. Not every product seems to have its variety increased,however . In the outlets of upper order business area class N1, the mean number of goods in only six of fourteen sampled products ranked higher than the mean number for the outlets of any lower order business area class (N2 to N4; J3, J4). These products covered both the lower and the higher demand groceries in the sample (Table 6.2. (ii)).

Unfortunately, the sample of 16 products was far too small to enable the determination of the principles, if any, whereby groceries outlet entrepreneurs in N1 centres select the particular products whose varieties they increase.

The entrepreneurs of the second upper order business area class, the Central Retail Area (J1), diversify their range of goods principally by increasing greatly the number of major product groups they stock, although there are also increases in the ranges of goods stocked within a few very carefully selected products (for example, tinned peas, jam, condensed and evaporated milk). On the other hand, the number of products — at least within the groceries group — are held at levels below those of the outlets of several of the lower order business area classes. (Tables 6.2. (ii), 6.4). This may reflect the constriction of both selling and storage space in outlets in the C.R.A. because of very high rentals and property rates and taxes.

In contrast, the entrepreneurs of the last upper order business area, the regional centre of Sandy Bay (J2), diversify their range of goods by reducing the total number of major product groups represented in them, and by extending spectacularly the total number of products, the sum total of goods, and the number of goods in every product within the groceries product group. It is clear that, despite the representation of some other major product groups such as greengroceries, meat and delicatessen goods, the outlets of the Sandy Bay centre function as very large, highly specialised groceries in comparison with the outlets of the other classes of business area. (Tables 6.2. (ii), 6.4).

The different methods which entrepreneurs use in upper order business areas to diversify their range of goods show that the large number of product groups, products and goods which are available for groceries outlets give entrepreneurs diverse means of changing their range of goods. But only one of these means may yield optimal profits for the particular class of business area in which an outlet is located — the determination of an appropriate means of diversification becomes a question which is inseparable from the question of outlet location.

The Combination of Outlet Price and Non-Price Offers in Different Classes of Business Area

Because price and non-price offers separately differ for the groceries outlets in different classes of business area, so too do the combinations of outlet price and non-price offers. In Hobart, groceries outlets in upper order business areas, in comparison with the outlets of lower order business areas, have a combination of :

(i) lower price levels and lower overall gross margins;

(ii) a greater range of prices at which varieties of a product are offered; a higher probability of one product variety being sold as a 'special'; generally lower prices on commonly-

stocked high - and medium - demand product varieties, with the possibility of some price discrimination;

(iii) a lower level of service, with fewer outlets offering the traditional credit and delivery services, although jointly-arranged manufacturer-retailer advertising is extended;

(iv) diversified ranges of goods, though with different types of alteration in different classes of higher order business area in the number of major product groups stocked, in the number of products, in the total of goods within each product group, and in the number of goods within different products.

The entrepreneurs of the upper order business areas compete by lowering overall outlet price levels and margins, by lowering the prices of high — or medium — demand goods, by offering a greater choice of the prices at which customers can obtain particular products, by diversifying their range of goods in different ways, and by extensive advertising of these attractions. The entrepreneurs of the lower order business areas compete by compensating for their higher outlet price levels, and for higher prices of individual goods, and for less price and product variety, by offering more service, and more of the important types of service (Tables 6.1, 6.2, 6.4). For example, the outlets of the lowest order business area classes (N4, J4), with the highest price levels, the highest prices for a majority of 21 sampled goods, and the least diversified ranges of goods, offer very much the highest level of personal service, trade the longest hours and specialise in offering credit. Another type of compensation for raised prices is provided by the outlets of the middle order business area class N2. These outlets have the fourth highest price level (although they offer the lowest or second or third lowest prices on 6/21 goods), and offer an exceptionally high level of all sorts of service except personal selling (Tables 6.1. (ii) and 6.4.[29] From these examples, it seems that although general differences can be discerned between the combinations of price and non-price offers, of outlets in higher and lower order business areas, when the combinations are examined in detail the outlets of each business area class seem to develop their own appropriate price and non-price offer combination. The range of goods, products, and product groups available to groceries outlet entrepreneurs appears to give them a range of price and non-price offer combination choices, and the solution of the problem of which is the optimal choice cannot be determined without a consideration of the outlet's location.

The differences in the price and non-price offer combinations of the groceries outlets in different classes of business area appear to be more marked than the differences in other outlet characteristics. They appear to be more marked, for example, than the differences in outlet scale, competitive and costs and efficiency characteristics. For the groceries outlets within each business area class display a much lesser degree of variability in their price, service, and range of goods characteristics than they do in other characteristics. The coefficients of

variation for the majority of business area classes for all price variates, for example, are particularly low, most being less than .1 or 1% (Statistical Appendix 4 - Tables 4.24 to 4.46). This may reflect the fact that the diversity of scales of outlet in the same business area class operate in the same type of local market. This could exert pressure on each entrepreneur in the business area class to make similar adjustments in their means of competition. Under these circumstances, the groceries outlets within each business area class could have nearly identical combinations of outlet price and non-price offers, no matter what their scale of operations and costs structure.

However, if this were so, large-scale supermarkets, medium-scale groceries, and small-scale general stores would separately tend to have exactly the same sort of strong relations between outlet location by class of business area, and price, service and range of goods, which are displayed by all outlets together. There is not much evidence of this even though some of the relations for some of the different business types are similar to those for all outlets together.[30] It may be concluded therefore that the associations of groceries outlet location by class of business area with outlet price and non-price offers, although strong, are not sufficiently strong enough to be reflected in identical associations for the separate groups of outlets of each business type. There must still be a range of appropriate adjustments in price and non-price offers which are possible for the entrepreneurs of the outlets of each business area class, as is the case with outlet scale and costs and efficiency characteristics.

The fact that groceries outlets are multiproduct group, multiproduct and multigood enterprises appears to have a particularly significant impact on the general differences which exist between the combinations of price and non-price offers for all the groceries outlets in upper order and lower order business areas. It clearly affects the types of price structure (increased product price-mix, greater use of 'specials', greater use of lower prices on medium and high demand goods combined with price discrimination against others) which characterise the outlets of upper order business areas, and thus the lower overall outlet price levels there. It also clearly affects the different sorts of diversification of outlet range of goods which are carried out by the entrepreneur in upper order business areas. And it possibly affects too, albeit indirectly, the difference in the service offers of outlets in upper and lower order business areas. For the diversification of range of goods, and the use of heavily advertised lower prices in upper order business areas either requires or permits a reduction in the provision of services. It therefore appears that, without reference to the 'multiproduct-nature of the retail firm',[31] there can be no proper explanation of the differences between groceries outlets in their combinations of price and non-price offers, or of the variations of these offers between different classes of business area. This has important theoretical implications which will be discussed later.

Implications for the Price and Non-Price offers of Outlets in Different Types of Business Area

Not only do the combinations of outlet price and non-price offers vary between different classes of business area, they also seem to vary between the two different types of business area which those classes comprise. For associations which are statistically significant at the 5% level are recorded for Hobart's groceries outlets between outlet location by type of business area and the following outlet characteristics: the prices of 13/21 sampled groceries goods, average % takings from specials, whether a delivery service is possessed or not, total product groups stocked, and the range of goods in 2/14 sampled groceries products (Tables 6.1 to 6.3). Moreover, in some cases, general stores display the same sorts of relation as do all outlets together; for example, in the case of total product groups omitted, the number of varieties of margarine stocked, and the prices of tinned baby food, dried fruits, margarine, bottled sources, jam and tinned peas.[32]

However, detailed tables[33] show that, in the case of each price, service or range of goods characteristic, the statistically significant differences between the outlets of the two different types of business area are produced by the distinctive price and non-price offers of the few outlets on one or other or both of two business areas, the C.R.A. (J1) and the Sandy Bay centre (J2). It may therefore be concluded that no real general difference exists between the price and non-price offers of the groceries outlets of the two types of business area. This conclusion is in accord with findings in previous chapters, that no real differences exist between the scale, competitive, and costs and efficiency characteristics of the outlets of the two different types of business area.[34] It is also consistent with the description of the gross relations of outlet location by class of business area with outlet price and non-price offers, for similar changes in price and non-price offers were found to exist between the outlets of the lower and the upper order centres of both N and J hierarchies.

DESCRIPTION OF THE GROSS RELATIONS OF PRICE, SERVICE, RANGE OF GOODS AND OUTLET LOCATION BY REGIONAL MARKET

Price and Non-Price Offers and their Combinations in Different Regional Markets

In addition to the relations between outlet location by class of business area and outlet price and non-price offers, strong predictable relations exist between outlet location by regional market and outlet price and non-price offers (Tables 6.1 to 6.3). The existence of these relations in the case of Hobart's groceries outlets lends further support to one of the propositions of the main hypothesis of this work: "that the locations of retail outlets become significantly interrelated in predictable ways with many other of their own characteristics, including their price and non-price offers".

The relations of outlet location by regional market with outlet price and non-price offers differ in one important respect from the relations of outlet location by class of business area with outlet price and non-price offers. Strong, overall relations exist with location classified by regional market for only some, but not all, of the measures of price offers, of service offers, and of range of goods. Striking differences therefore exist between regional markets in the combination of price offers, the combination of service offers and the combination of range of goods offers of their outlets, and thus in their outlet overall price-service-range of goods combination. But differences do not exist between regional markets in each and every outlet price and non-price offer – price structure, price level, level of service offered (indicated by the combination of services provided), the presence or absence of important types of customer service, number of product groups, products, and goods stocked, and the distribution of goods between different products. This situation contrasts with the situation in the case of location by class of business area, where gross relations did exist between outlet location and each and every price and non-price offer. (Tables 6.1 to 6.3).

It can be shown that the lack of variation of certain individual price and non-price offers between regional markets is the outcome of two forces. Firstly, entrepreneurs in different markets tend to specialise in one or two only of price, service and range of goods as means of competition. Some evidence of this has already been provided in Chapter five, when the relations of this sort of specialisation with outlet scale, costs structures and efficiency were discussed. Secondly, in deciding to specialise in price, service or range of goods, entrepreneurs do not appear to decide to adjust all their price offers, or all their service offers, or all their range of goods characteristics. Rather, they select some characteristic of price (e.g. price level), or some characteristic of service (e.g. delivery), or some characteristic of range of goods (e.g. total number of groceries products carried), which appear particularly effective means of competition, given their scale of outlet, the distinctive socio-economic characteristics of their customers and their distinctive local market structures.[35]

These two not unrelated forms of specialisation, which are induced by considerations of outlet scale, customer characteristics and customer trip characteristics, can be shown to affect variations of individual price and non-price offers between markets in a variety of ways.

In the case of some outlet price and non-price offers (e.g. price structure), the differing impacts of scale, customer characteristics and local market structures on the means of competition do not preclude the appearance of a strong, predictable overall relation with outlet location classified by regional market. But in the case of other outlet price and non-price offers (e.g. price level), the impacts of scale, customer characteristics and local market structures on the means of competition are such that no overall relation appears with regional market location.[36] However, in these cases, the conclusion need not be drawn that each of these price and non-price offers shows no strong, predictable relation with outlet location by regional market. Although no overall relation appears, each of these price and non-price offers still has strong predictable connections with outlet location by regional market which arise through its conflicting linkages with the distinctive scale, customer and competitive characteristics of the outlets in each regional market. In these cases, therefore, the lack of appearance of strong, predictable overall relations with regional market location does not cast doubt upon one implication of the main hypothesis of this work, that strong relations of some definable type exist between outlet location and individual outlet price and non-price offers.[37]

The Price Offers of Outlets in Regional Markets

Price levels in regional markets. The entrepreneurs of the outlets of the inner and mid-suburban markets of North Hobart and Moonah specialise in price as their chief means of competition. They do this by specialising in low overall price levels and margins to attract customers and get maximum per capita expenditures in markets where aggregate annual household incomes are low, where customers are not highly mobile, and where strong competition is faced from five or six oligopolistically competitive supermarkets in two neighbouring regional centres. (Tables 6.5, 6.6). The outlets of the North Hobart and Moonah markets are small to medium in size, however. This limits the extent to which their price level can be lowered because of their entrepreneur's inability to obtain the lowest purchase prices of goods through bulk deals, or joint retailer-manufacturer 'specials'. Consequently, despite the fact that services are reduced to a minimum,[38] and despite the fact that goods carried are reduced to a few high volume sellers and low quality lines, in both the North Hobart and Moonah markets outlet price levels and gross margins remain relatively high (Table 6.5). The difference is not very great between the price levels of these small-scale outlets, and the price levels of other larger-scale outlets in outer suburban markets. The entrepreneurs of the

larger scale outlets buy at lower prices, but do not pass on these lower prices to the consumer since they specialise in service and range of goods rather than price as means of competition. Thus no overall relation appears between outlet price level and outlet location by regional market. But this is owing, on the one hand, to attempts by entrepreneurs of small scale outlets in inner- and mid-suburban markets to specialise in price, and, on the other hand, to decisions to adjust prices to cater for specialisation in other means of competition by the entrepreneurs of the larger-scale outlets of outer suburban markets.

Price structures in regional markets. In contrast, specialisation in price as a means of competition by the entrepreneurs of only two markets does not preclude the existence of strong, overall relations of regional market location and outlet price structures. Indeed, Tables 6.1 to 6.3 and Table 6.5 show that the similar price levels of the outlets in each regional market are associated with very different outlet price structures.

On the one hand, the entrepreneurs of the North Hobart market attempt to lower price levels through distinctive price structures which are characterised by the presence of low-quality, low price lines in many groceries products.[39] There is no evidence that the entrepreneurs of the outlets of this market use cut price 'specials' to a great extent (Table 6.5) or that they consistently price commonly stocked groceries lower than entrepreneurs elsewhere (Table 6.1.(ii)). On the other hand, the outlets of the Moonah market with similar price levels have different price structures, for here entrepreneurs attempt to lower price levels by both carrying some low-price, low-quality lines,[40] and by making use of cut price 'specials' (Table 6.5). However, commonly stocked groceries are still not priced consistently lower than elsewhere (Table 6.1.(ii)).[41]

The outlets of the remaining markets (Central City, Glenorchy, Sandy Bay and Bellerive) also have different price structures. Their price structures are different primarily because there are variations in the extent to which 'specials' are used (Table 6.5), and because there are differences in the prices of commonly-stocked medium and high demand goods (Table 6.1 (ii)). The entrepreneurs of the largest scale outlets of outer suburban markets use goods as 'specials' to a greater extent than the entrepreneurs of the inner suburban market (Central City).[42] In addition, the entrepreneurs of each market select individual high and medium demand goods which they offer at lower or higher prices than elsewhere.[43] Unfortunately, the sample of goods priced was not sufficiently large enough to determine the types of good and the forms of price discrimination which characterise each market.[44, 45]

Combinations of price levels and price structures in regional markets. Because of the variations in outlet price structures between regional markets and because of entrepreneurs' attempts to adjust outlet price levels to suit their differing emphasis on price and non-price offers as means of competition, marked differences appear in the combinations of the price offers of outlets in inner and outer suburban markets. These differences reflect the variety of price adjustments which are open to the entrepreneur of the multi-product-group, multiproduct, multigood groceries establishment.

The price offers of the outlets of the inner suburban markets (Central City and North Hobart) are distinguished by price structures with a smaller % of goods sold as 'specials', and by various forms of price discrimination resulting in the lowest proportion of high or medium demand goods sold at lowest or second lowest prices. Where the entrepreneurs of the small-scale outlets of inner suburban markets desire to specialise in price as a means of competition (as in North Hobart), they attempt to offer lower price levels by concentrating on low quality goods.

On the other hand, the price offers of the outlets of the outer suburban markets (Glenorchy, Moonah, Bellerive and Sandy Bay) are distinguished by higher proportions of goods sold as 'specials'. They are also distinguished by various forms of price discrimination which result in higher proportions of medium and high demand goods being sold at lowest or second lowest prices, and by varying product price-mixes. Where the entrepreneurs of the outlets of an outer suburban market specialise in price competition (as in the Moonah market), low general price levels may be produced by a combination of low-quality goods with a moderate degree of 'specialling', and lowered prices on some medium and high demand goods.

The Non-Price Offers of Outlets in Different Regional Markets

Service offers. Differences also appear between the combination of service offers of the groceries outlets in inner and outer suburban markets. In general, the outlets of the outer suburban markets have a higher level of service provision, and a higher proportion of outlets supply the important services of advertising, credit and delivery (Table 6.5). Specialisation in the provision of services occurs in the case of the outlets of the three peripheral suburban markets of Glenorchy, Sandy Bay and Bellerive.[46]

However, the general differences in service offers of the outlets in inner and outer suburban markets are blurred by the tendency for the entrepreneurs of each different regional market to offer their own distinctive levels and types of service, even when they do not primarily specialise in service as a means of competition (Table 6.5). The outlets of the inner suburban market of North Hobart, where entrepreneurs specialise in price rather than service as a means of competition, still provide a distinctive

service offer combination of counter-selling, long trading hours and credit. On the other hand, the outlets of the other inner city market, Central City, which specialise more in limited service than in price, offer counter-selling and long trading hours, and, especially in the case of the outlets in the C.R.A., city-wide advertising. The types of service provided in each inner city market are appropriate for markets where retailers cling to traditional practices, where competition is not aggressive in either price or service, where customer incomes and mobility are generally low, and where outlets are too small to take advantage of the lower retail price and/or those service opportunities offered by low purchase price bulk deals.

The entrepreneurs of outlets of the peripheral suburban market of Glenorchy offer the highest level of service provision, and clearly specialise in service more than the outlets of any other market. The outlets of this market are distant from their major price-cutting competitors, and need not aggressively compete in price to gain the patronage of their medium – to upper-income, mobile customers. The entrepreneurs of the outlets of the peripheral Sandy Bay and Bellerive markets, who also specialise in service, restrict themselves to services which are essential in moderately to highly competitive markets to attract higher income, more leisured, more mobile and possibly more selective customers. Personal selling, car-parking, delivery, and advertised information about goods for sale are emphasised. There is somewhat less emphasis on credit and on long trading hours in these two markets than there is in the Glenorchy market. (Table 6.5).

Because the outlets of the peripheral suburban markets are large-scale, a moderate to high level of service provision can be maintained without producing inordinately high price levels, as the purchase prices of their bulk-bought goods are low. In contrast, the small-scale outlets of the mid-outer suburban market of Moonah, where entrepreneurs specialise in price rather than service competition in a lower income, medium mobility market, can only offer moderate prices by restricting their services to counter-selling, long opening hours, and car-parking facilities (Table 6.5).

The tendencies of the entrepreneurs of different markets to specialise in price rather than service, or to specialise in service by adjusting some but not all possible types of service, mean that no statistically significant overall relation appears of the provision of some of the individual (as distinct from the combination of) services with outlet location classified by regional market. This is so, for example, in the case of the level of provision of personal counter service (% of goods sold self-service). In this case, Tables 6.2.(i) and 6.5 show how the different adjustments of the level of provision of counter service in conjunction with other services, in the process of providing a distinctive level and combination of services in each market, does not result in any statistically significant variation in counter service between

markets. Nevertheless, despite the fact that for some individual services no overall relations appear with outlet location classified by regional market, there is evidence that systematic adjustments are made in these services to suit the scale, competitive and customer characteristics of the outlets in each market; their level of provision is still strongly related in a predictable way with regional market location.

The range of goods in regional markets. The variation of outlet range of goods between regional markets is similar to the variation of outlet service and price offers. There are differences between the outlets of inner and outer suburban markets in the combinations of product groups, products and goods offered. But the fact that some entrepreneurs specialise in the use of range of goods as a means of competition, and the fact that they do so in distinctive ways, means that only two of the four measures of outlet range of goods (total product groups omitted; total groceries products omitted) differ significantly between the outlets of individual regional markets. (Tables 6.2, 6.5).

With regard to outlet combinations of product groups and products and goods, the outlets of the outer suburban markets differ from those of the inner suburban market in offering fewer product groups, but a larger range of products within the major product groups carried (lower number of groceries products omitted);[47] the outlets of the outer suburban market also tend to have a larger sum total of goods in each product group, and a larger assortment of goods in some though not all individual products (e.g. margarine, bottled sauces). (Table 6.5). The outlets of the outer suburban markets accordingly specialise in range of goods as a means of competition, in contrast with the outlets of the inner suburban markets.[48] The tendency for the entrepreneurs of the three peripheral markets to restrict their number of product groups, while extending the number of products and goods, may reflect the advantages accruing to these largest scale outlets of concentrating on the goods and products which can be secured in bulk from one supplier.

Despite the general tendency for outer suburban market entrepreneurs to specialise by increasing products and varieties of goods and decreasing product groups, specialisation in range of goods as a means of competition takes different forms in different markets. It is influenced by outlet scale, outlet customer and outlet competitive characteristics (Table 6.5). For example, the medium scale highly competitive outlets of the Moonah market, with customers of low income and mobility, specialise by concentrating on the high volume selling of restricted ranges of high demand, lower quality, lower price goods in medium-high demand products and product groups. In contrast, the very large-scale outlets of the highly competitive Sandy Bay market, where customers have high incomes and are very mobile, specialise mainly by offering larger numbers of product groups, and by radically increasing the total number of groceries lines carried, especially within products where high quality, imported, exotic lines can be carried (e.g. sauces, jams, soups). (Table 6.5).

Because the entrepreneurs of the outer suburban markets diversify their range of goods differently, by extending the number of goods carried in only a few and in different products, the ranges of goods in individual products separately show no predictable overall association with outlet location by regional market. In addition, the fact that only the entrepreneurs of two markets (Sandy Bay, Bellerive) diversify by extending the sum total of groceries lines stocked, means that no overall relation appears of the outlet overall range of goods index and regional market location. On the other hand, the diversity of the adjustments of the entrepreneurs of all markets in total product groups and products stocked are sufficient to produce strong overall relations of total product groups omitted and total products omitted with outlet location classified by regional market. (Tables 6.2, 6.5).

The Combination of Outlet Price and Non-Price Offers in Different Regional Markets

Because range of goods, service offers and price offers separately differ between the groceries outlets in different regional markets, so too does the whole combination of outlet price and non-price offers, (Table 6.5). In Hobart, groceries outlet entrepreneurs in the outer suburban markets (Moonah, Glenorchy, Sandy Bay and Bellerive):

(i) tend to specialise in competing through service and range of goods rather than through price;

(ii) in general offer a high level of service provision and the more important types of service (advertising, delivery, credit);

(iii) adjust the precise level and combination of services to suit their outlet's scale, and to suit the distinctive customer characteristics and market structures of their regional market: (for example, where customer incomes are medium or low and competition is highly aggressive and outlets are of only medium scale, as in the Moonah market, entrepreneurs replace service by price as their major means of competition, although a distinctive level and combination of services is retained);

(iv) tend to diversify their range of goods by restricting the number of major product groups carried, and by extending the number of products stocked in the various product groups retained; the number of items in carefully selected products are also increased;

(v) adjust the precise combination of product groups, products and goods to suit their outlet's scale, and the distinctive customer characteristics and market structures of their regional markets (for example, where customer incomes are medium or low, competition is highly aggressive, and outlets are of medium scale, as in the Moonah market, an

outlet's range of goods may be restricted to quick moving, lower quality high demand goods and products; where customer incomes are high, competition is aggressive, and outlets are large scale, as in the Sandy Bay market, entrepreneurs may radically increase the total number of groceries goods carried and especially the number of goods in products where high quality imported or exotic lines can be carried);

(vi) retain comparable price levels with outlets in other markets, despite the costs of service and a diversified range of goods, generally because of the purchase price advantages gained by larger scale operations;

(vii) employ price structures which are different from those of the outlets of inner suburban markets, and which differ between outer suburban markets, by making greater but varying use of cut price 'specials', by using differing price discrimination practices, and by offering different price and good mixes within products stocked.

Groceries outlet entrepreneurs in inner-suburban markets (Central City and North Hobart):

(i) specialise either in price and limited service competition (North Hobart), or in limited service competition alone (Central City);

(ii) offer a lower level of service provision and omit important types of service;

(iii) restrict services offered to counter selling, long trading hours and credit to suit their outlet's small scale, and the lower income, lower-mobility characteristics of their customers;

(iv) do not specialise in diversification of range of goods as a means of competition;

(v) retain comparable price levels with outlets in outer suburban markets despite specialisation in price and limited service competition, because of the effects of the higher purchase prices paid for their small purchases of goods;

(vi) employ different price structures, with less use of specials, with differing forms of price discrimination, and with price mixes reflecting low-quality and staple goods.

The differences in the price and non-price offer combinations of the groceries outlets in different regional markets appear to be more marked than the differences in other outlet characteristics, for example, outlet scale. For the groceries outlets within each regional market display a much lesser degree of variability in their price, service and range of

goods characteristics than they do in other characteristics. The coefficients of variation for all price variates, for example, are particularly low (most less than 1%) for all regional markets (Statistical Appendix 4 – Tables 4.24 to 4.46). This could reflect the fact that outlets of diverse scale operate in the same regional market in the same type of local market structure, and their customers have similar socio-economic characteristics. This could exert pressure on each entrepreneur in a market to make similar adjustments in the means of competition. Under these circumstances, groceries outlets in each regional market could have similar combinations of outlet price and non-price offers, no matter what their scale and other characteristics.

But if this were so, large-scale supermarkets, medium-scale groceries and small-scale general stores would separately tend to have the same sort of strong relations between outlet location by regional market and outlet price and non-price offers, which are displayed by all groceries outlets together. There is not much evidence of this, even though some of the relations for some of the business types are similar to those for all outlets together, for example, the relations for general stores of location by regional market and the prices of dried fruits, bottled sauces and tinned peas.[49] It may be concluded therefore, that the associationsof groceries outlet location by regional market and outlet price and non-price offers, although strong, are not sufficiently strong enough to be reflected in similar associations for the separate groups of outlets of each business type. There must still be a range of appropriate adjustments of price and non-price offers which are possible for the entrepreneurs in each market, as is the case with outlet scale and other characteristics.

The fact that groceries outlets are multiproduct-group, multiproduct and multigood enterprises appears to have a particularly significant influence on the general differences which do appear between the combinations of price and non-price offers of the outlets in inner and outer suburban markets. Firstly, it clearly affects the ability of the entrepreneurs of the largest scale outlets of the outer suburban markets to specialise in range of goods as a means of competition, and to do so by making choices of product groups, products and goods which are particularly suited to operations in their particular market. Secondly, it clearly affects the ability of entrepreneurs in outer suburban markets to combine range of goods with service as their principal means of competition, without substantially raising price levels. For goods which can be used as effective cut-price 'specials' are available to keep price levels low, while price discrimination can be practised so that the costs of provision of services can be recouped in high prices on some other goods. Thirdly, it puts small-scale outlets serving lower income customers in inner suburban markets at a competitive disadvantage. For where customer incomes are so low that there is no demand for the stocking of additional goods other than staples, and where bulk purchasing of goods cannot take place, entrepreneurs find it difficult to compete by lowering price levels, or by altering price

structures using 'specials', or by increasing the level and variety of service provided, or by diversifying range of goods. It therefore appears that, without reference to the multiproduct nature of the retail firm, there can be no proper appreciation of the relations between outlet location, outlet price and non-price offers, and local market structures. And, especially, there can be no proper explanation of the price and non-price offers which occur in a retail groceries market. This conclusion is consistent with that drawn earlier from the study of the variations in outlet price and non-price offers by class of business area, and it again has important consequences for theory which are discussed later.

Implications for the Price and Non-Price Offers of the Outlets of Different Business Types

To summarise, the locations of outlets classified by regional market, as well as by class of business area, show strong, predictable relations with outlet price and non-price offers. The presence of these relations in the case of Hobart's groceries outlets supports the major hypothesis of this work: "that the locations of the establishments of a retail trade become significantly interrelated in predictable ways with many other of their own characteristics (including their price and non-price offers)." In Hobart, as groceries outlet locations change from lower to higher order business areas, significant differences appear in each and every outlet price and non-price offer and in their combinations. In addition, as groceries outlet locations change from inner to outer suburban markets, significant differences appear in the combinations of price offers, of service offers, and of range of goods characteristics, as well as in the overall price-service-range of goods combination, even though significant differences do not occur in the case of each and every price and non-price offer.

These systematic changes in outlet price and non-price offers are accompanied by systematic changes in outlet scale and costs and efficiency characteristics which have been identified earlier.[50] All together, the systematic changes in outlet operating characteristics with change in outlet location could result in distinctive classes of outlets being formed, with outlets being classifiable by their price and non-price offers, as well as by their size and costs and efficiency characteristics.

Three such distinctive groups of outlets were originally identified in a very arbitrary way after inspection in the field in Hobart. These groups were the business types, supermarkets, groceries and general stores. The distinctive nature of the outlets of each of these three business types has to some extent been objectively confirmed by analysis of the data for their scale, costs and efficiency characteristics.[51] It is further confirmed objectively by analysis of the data for their price and non-price offers.

Tables 6.1, 6.2, 6.3 and 6.6 show that significant differences exist between supermarkets, groceries and general stores in each and every price and non-price offer, with the only

exception being total number of major product groups stocked. On the other hand, moderate coefficients of variation (most less than 60% or .60) for each business type for some price and non-price offers indicate that some range of locational and price and non-price offer adjustments remain possible for the entrepreneurs of the outlets of each business type; the outlets of each business type cannot be regarded as homogeneous (Statistical Appendices 4, 5). The results of Tables 6.1, 6.2, 6.3 and 6.6 therefore support the findings of previous chapters that, in Hobart, systematic adjustments by groceries outlet entrepreneurs of their location, scale and other operational characteristics result in the appearance of outlets with a wide range of combinations of size and other operational characteristics; however, these combinations are easily classifiable in the field as supermarkets, groceries and general stores.[52]

INTERPRETATION OF THE GROSS RELATIONS OF OUTLET LOCATION, AND PRICE, SERVICE AND RANGE OF GOODS

During the description of the differences between the groceries outlets in different locations, it was not possible to avoid making some causal inferences. The differing price and non-price offers of the outlets in different regional markets were both described and to some extent explained by referring to the effects on them of outlet scale, and of outlet customer and competitive characteristics. It is now possible to extent the causal interpretation of the observed strong, predictable associations of groceries outlet location and groceries outlet price and non-price offers in Hobart in 1964.

Theoretical and empirical studies suggest that the associations may be interpreted best as close spatial and temporal interrelations between price and non-price offers and location.[53] For example, Chamberlin's Theory of Monopolistic Competition contains an analysis of the possible interactions over space and time between retail outlet location as an aspect of product differentiation, other aspects of product differentiation (which could include the service and range of goods provided in a retail outlet), "selling expenses" (expenditures on advertising, promotions and display), and price.[54] There are also a number of theoretical studies which focus on the interactions of price and location only, including those by Smith, Hall, Lewis and Hotelling.[55] In addition, empirical work includes some historical studies of retailing by Simmons, Levy, Jeffrys and McClelland, inter alia, which describe the interactions over time between retail locations and price and non-price offers in Western societies.[56] There are also works in marketing, marketing geography and retail business management which reveal clearly, either implicitly or explicitly, the interdependence of retail location and the means of competition.[57]

In the present study, interpreting the observed associations of retail outlet price and non-price offers as close, two-way spatial and temporal relations helps to account for the locational structure of groceries retailing in Hobart. The interpretation thus provides additional evidence of the support given by the 1964 data for Hobart's groceries outlets to the first and major hypothesis of this work: "that the locations of the establishments of a retail trade become significantly interrelated in predictable ways with many other of their own characteristics (including their price, service and range of goods characteristics)." The interpretation is made first of the observed gross relations of outlet location by class of business area with outlet price and non-price offers, and then of the observed gross relations of outlet location by regional market with outlet price and non-price offers.

Location Classified by Class of Business Area and Outlet Price, Service and Range of Goods

General Interpretation

The overall relations of outlet location classified by class

of business area with outlet price and non-price offers may be interpreted as reflections of two linked cause-and-effect situations.[58] On the one hand, in Hobart, an initial change over space or time in groceries outlet location from lower order (N2 to N4; J3, J4) to higher order (N1, J1, J2) business areas will be the cause of:

(i) a fall in price levels and overall gross margins;

(ii) a change in price structures; firstly, through an increase in the range of prices at which the goods of different products are offered; secondly, through an increase in the number of goods offered as specials; and thirdly, through a decline in the prices of a majority of commonly-stocked high and medium demand goods accompanied by price discrimination on the rest;

(iii) a fall in the level of service provided, and elimination of traditional credit and delivery services, even though jointly-arranged manufacturer-retailer advertising services are extended;

(iv) diversification of outlet range of goods, with, in each different class of business area, distinctive types of alteration in the number of major product groups stocked, in the total number of goods and products carried in each major product group, and in the number of lines carried in individual products;

(v) substitution of the use of widely advertised price-cutting and diversified range of goods as the major means of competition in the place of various combinations of service.[59]

The changes in price and non-price offers will be made to permit the attainment of the increase in scale and presumably in profits which location in upper order business areas allow.[60] The perception by the entrepreneurs of the trade of the profits increases which are attained in upper order business areas, because of the alteration in location and in the means of competition, will in turn be the cause of other changes in location from lower to higher order business areas. Thus an initial change in groceries outlet location in Hobart will be the cause of changes in outlet price and non-price offers which themselves will be the cause of another change in location. This argument is consistent with evidence of the factors affecting changes in retail location in other cities besides Hobart. In Chicago, for example, temporal changes in retail location from lower to higher order business areas have been studied in some detail by Simmons. These locational changes caused a shift towards large-scale operations emphasising diversified ranges of goods and heavily-advertised price-cutting, particularly in the convenience goods trades. The changes in outlet price and non-price offers in turn would cause further shifts in outlet location from lower order to higher order business areas, as new entrants were attracted to the more profitable higher order locations, and some of the marginal smaller scale competitors in lower order centres were eliminated.[61]

On the other hand, in Hobart, certain initial spatial or temporal changes in outlet price and non-price offers will be the

FIG. VI.1

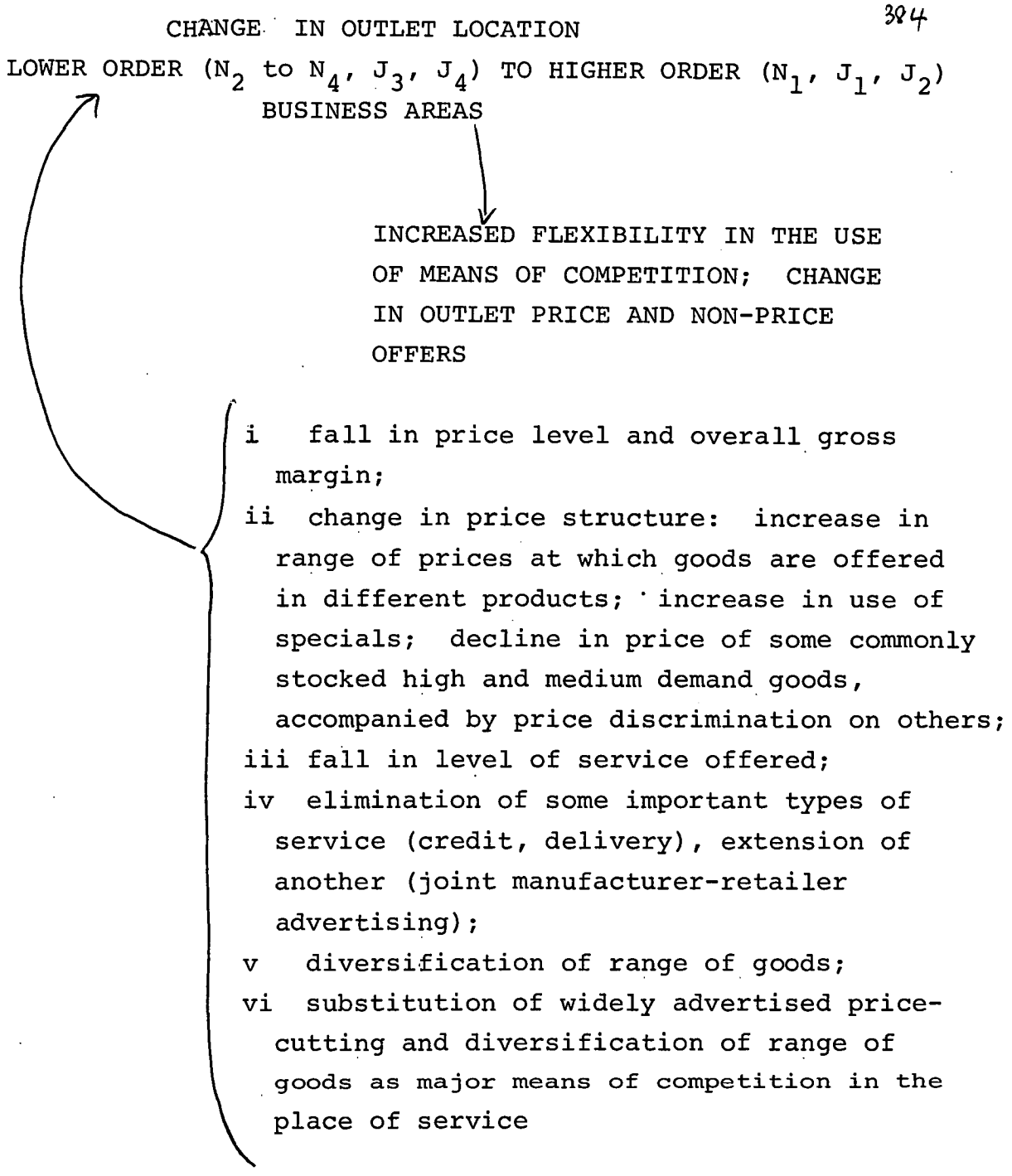


FIG. VI.1 INTERDEPENDENCE OF OUTLET PRICE AND NON-PRICE OFFERS AND OUTLET LOCATION BY CLASS OF BUSINESS AREA, GROCERIES OUTLETS, HOBART

cause of changes in outlet location from lower order to higher order business areas, which in turn will be the cause of changes in outlet price and non-price offers. Conditions in the Hobart groceries trade (e.g. closer retailer-manufacturer relations) may lead to a fall in outlet price levels, to increased use of 'specials', to price lowering on commonly stocked high and medium demand goods, to the practising of price discrimination, to the decline of traditional services, to the diversification of ranges of goods, and to the greater use of lower cost advertising. All these changes in outlet price and non-price offers will together be the cause of a change in groceries outlet location from lower order (N2 to N4; J3, J4) to higher order (N1, J1, J2) business areas. This change in location will occur because the entrepreneurs of the outlets of the upper order business areas will be able to exploit conditions permitting heavily advertised price-cutting over a diversified range of goods to much greater advantage than the entrepreneurs of outlets in lower order business areas. For entrepreneurs in upper order business areas are in the most accessible locations, that is, they are in the only locations which allow the realisation of the maximum increases in scale which the changes in the means of competition will induce. The advantages accruing to entrepreneurs in upper order business areas will act towards the preservation of at least some of the existing outlets there, the attraction of new entrants to upper order locations, and the decline and disappearance of some of the less fortunate competitors in lower order business areas. Thus a change in outlet location from lower order to higher order business areas will be a result of conditions permitting heavily-advertised price-cutting over a diversified range of goods and the elimination of traditional services. This argument is in line with evidence from other cities of changes in retail outlet locations from lower order to higher order business areas, following the development of large-scale retailing and direct manufacturer-retailer relations for bulk purchases of a wide assortment of goods and for assistance with advertising.[62]

But any change in outlet location from lower order to higher order business areas will in turn be the cause of further changes in outlet price, service and range of goods. The sorts of change which will occur in outlet price and non-price offers following a change in location have been described above. Thus the second series of changes, which follows from an initial change in outlet price and non-price offers links in with the first series of changes which follows from an initial change in location. Together both series constitute the overall interrelations of groceries outlet location by class of business area with groceries outlet price and non-price offers in Hobart. The interrelations are summarised diagrammatically in Fig. VI. 1.

An initial change in either outlet location or in outlet price and non-price offers may be effected in turn by a change in some of the other endogenous variables, such as the competitive characteristics of the outlets. On the other hand, the whole pattern of spatial and temporal interaction between outlet price and non-price offers and outlet location may be dependent upon the current state of certain slowly changing exogenous variables. One such variable is

the state of the organisational structure of distribution, whose effects on the relations of outlet location and outlet price and non-price offers were briefly discussed in Chapter Five.[63] Another exogenous variable which could affect the pattern of relations of outlet location with outlet price and non-price offers is the nature of institutional restrictions by the government or by manufacturers' and retailers' organisations on the price, service and range of goods offers by entrepreneurs. However, the precise chain of effects set up by the impact on outlet price and non-price offers and on outlet location of endogenous and exogenous variables may be more properly discussed later when interest is finally centred on the primary and secondary relations of outlet price and non-price offers and location.

The interrelationship which is summarised in Fig. VI.1 implies that the mutual relations of outlet price and non-price offers with outlet location by class of business area operate in very similar ways within the hierarchy of lower order and higher order N centres and within the hierarchy of lower order and higher order J centres. This is consistent with the findings in previous Chapters that spatial or temporal changes from locations in N business areas to locations in J business areas of similar lower or higher order will represent no significant change in location, and that no interaction with other variables will be set up.[64] It is also consistent with the finding from the data for groceries outlets in Hobart that no significant relation actually existed between location classified by N or J business area type, and outlet price and non-price offers.

Explanation of the Locational Structure of Groceries Retailing in Hobart in 1964

The interrelations of outlet location by class of business area with outlet price and non-price offers help account for many of the outstanding features of the locational structure of groceries retailing in Hobart in 1964. They add to the partial explanations already given in the last two chapters by the mutual relations of outlet location, with outlet scale, competitive and costs and efficiency characteristics.

On the basis of the interrelations, it seems that the total profits attainable may be assumed to be exceptionally high for some outlets in the few highly accessible upper order N and J business areas. Here a handful of entrepreneurs will be the only ones who can take advantage of greatly diversified product ranges and heavily-advertised price-cutting to attract and retain the highest sales in the market. Upper order business areas will therefore be very attractive to retail groceries outlet entrepreneurs. Conversely, total profits may be assumed to decline but to remain above the minimum necessary for continued operation, in many locations in the large number of lower order N and J business areas. For opportunities appear to exist for profitable operations for businesses of a range of smaller scales, since customers appear responsive to a variety of particular combinations of service, price and range of

goods in these locations.[65] Bearing these considerations in mind, the following features of the locational structure of groceries retailing in Hobart in 1964 are readily explicable:[66]

(i) that the six upper order N and J business areas had attracted the greatest number of outlets per centre, and had the highest proportion of business areas possessing groceries outlets;

(ii) that the highest number of groceries outlets still existed in the lower order N and J centres;

(iii) that there were only nine very large-scale outlets (supermarkets) and these were exclusively located in the higher order N and J centres;

(iv) that a large number of middle size outlets (groceries) could exist in all classes of business area, though be predominant in lower order business areas;

(v) that numerous small-scale outlets could exist concentrated in the lowest order business areas, though represented elsewhere;

(vi) that the groceries outlets of higher order business areas were comprised largely of supermarkets and general stores, the largest and the smallest outlets;

(vii) that medium and small-scale outlets (groceries and general stores) were typical of middle order business areas;

(viii) that the smallest-scale outlets (general stores) were dominant in the very lowest order business areas.

Location Classified by Regional Market and Outlet Price, Service and Range of Goods

General Interpretation

Like the variations in the groceries outlet price and non-price offers between different classes of business area, the variations between regional markets in the combinations of groceries outlet price and non-price offers may be interpreted as reflections of two linked cause-and-effect situations. On the one hand, an initial change over space or time[67] in groceries outlet location from inner suburban (Central City, North Hobart) to outer suburban markets (Moonah, Glenorchy, Sandy Bay, Bellerive) will be the cause of the following changes in the combinations of outlet price and non-price offers:[68]

(i) in general, substitution of competition through service and range of goods for price and limited service competition or limited service competition alone (competition through the traditional services of long hours of personal selling, credit and delivery);

(ii) in general, increase in the level of service provision and in the probability of an outlet providing most of the important services (joint retailer-manufacturer advertising, credit and delivery);

(iii) in general, diversification of range of goods by restriction of the number of major product groups carried, by extension of the number of products stocked in the product groups retained, and by increases in the number of goods carried in carefully selected products;

(iv) the retention of comparable price levels with outlets in inner city markets;

(v) differentiation of the outlet price structures from those of outlets of inner city markets, and differentiation of outlet price structures between outlets of different outer suburban markets, by a combination of increased use of specials with differing price discrimination practices and with different price mixes within products stocked.[69]

The changes in outlet price and non-price offers will be directed towards the increases in scale, and presumably in profits, which locations in outer suburban markets permit. The perception by the entrepreneurs of the trade of the profit increases attained by the locational and price and non-price offer alterations will in turn be the cause of other changes in location from inner to outer suburban markets. Thus, in Hobart, an initial change in groceries outlet location classified by regional market will be the cause of changes in the combinations of outlet price and non-price offers, which themselves will be the cause of another change in groceries outlet location.

This argument is in line with evidence from cities other than Hobart. In other Australian capital cities, for example, a shift in outlet location from inner to outer suburban markets with the addition of new regional suburban shopping centres has been deemed to cause an increase in scale and in service, without substantial rises in price, in the outlets of individual trades.[70] In addition, the prospects of increased profits under these conditions have attracted additional new centres to the periphery in preference to inner city areas, and, as a result of the competition provided by the new centres, outlets in inner city areas have declined. Thus further changes in outlet location from inner city to outer suburban locations have occurred.[71]

On the other hand, certain initial spatial or temporal changes in the combinations of outlet price and non-price offers will be the cause of a change in groceries outlet location from inner suburban to outer suburban markets, which in turn will be the cause of further changes in the combinations of outlet price and non-price offers. Conditions in the Hobart groceries trade may lead to much more flexible outlet operations (for example, following a change in manufacturer-retailer relations), in which the number of possible

FIG. VI.2

CHANGE IN OUTLET LOCATION
FROM INNER SUBURBAN TO OUTER SUBURBAN MARKETS

INCREASED FLEXIBILITY IN USE OF MEANS OF COMPETITION; CHANGE IN COMBINATIONS OF OUTLET PRICE AND NON-PRICE OFFERS

i increase in level of service provision;
ii increase in provision of most important types of customer service (credit, delivery, joint manufacturer-retailer advertising);
iii diversification of outlet range of goods by restriction of the number of major product groups carried and extension of number of products and goods in the product groups retained; increase in the number of goods carried in carefully selected products;
iv no significant increase in price level;
v differentiation of outlet price structure by increased use of specials, combined with differing price discrimination practices and differing price and good mixes within products;
vi tendency to substitute service and range of goods as major means of competition instead of price;
vii tailoring of particular combinations of price and non-price offers to suit particular market conditions

FIG. VI.2 INTERDEPENDENCE OF OUTLET PRICE AND NON-PRICE OFFERS AND OUTLET LOCATION BY REGIONAL MARKET, GROCERIES OUTLETS, HOBART

levels and types of services and the number of possible combinations of goods are increased; in which price and non-price offers are tailored to suit market requirements; in which the price levels of large-scale outlets can be kept in line with those of other outlets even if service and range of goods are increased; and in which the cost of increased service and the increased use of cut-price goods can be recouped to some extent by price discrimination. Should such changes in groceries outlet price and non-price offers occur, they will be the cause of a change in outlet location from inner to outer suburban markets. This change in location will take place because entrepreneurs in the outer suburban markets — where there are in general more active competition and higher income, more mobile customers — will desire and will be able to take advantage of the increased flexibility of operations to increase scale and profits; they will be the ones willing and able to provide generally increased but diversified levels and ranges of services, extended but differing ranges of goods, including some exotic, high quality lines, but without increasing price levels. The low incomes of customers in inner suburban areas, and lack of desire to compete, appear to restrict the entrepreneurs there to small-scale operations and to the provision of limited service of traditional types, to ranges of goods which do not include other than staple products, and to relatively high prices. The advantages accruing to entrepreneurs in outer suburban markets will result in the preservation of existing outlets in these locations, and in a preference by entrepreneurs of new outlets for outer suburban locations. Thus changes in outlet location from inner suburban to outer suburban areas will occur.

But any change in outlet location from inner suburban to outer suburban markets will in turn be the cause of further changes in the combination of outlet price, service and range of goods. The sorts of change which will occur following a change in regional market location have been described above. Thus the second series of changes which follows from an initial change in price and non-price offers links in with the first series of changes which follows from an initial change in location. Together, both series comprise the overall interrelations of outlet location classified by regional market with outlet price and non-price offers. The interrelations are summarised diagrammatically in Fig. VI. 2.

An initial change in either location or in price and non-price offers may be effected in turn by changes in some of the other endogenous variables, such as the competitive characteristics of the outlets. On the other hand, the whole pattern of change in both outlet location and outlet price and non-price offers will be dependent upon the current state of certain slowly-changing exogenous variables. One such variable is the state of the organisational structure of distribution, whose effects on the relations of outlet location and outlet price and non-price offers were discussed in Chapter five.[72] Another exogenous variable which could affect the pattern of relations of outlet location by regional market and price and non-price offers is the nature of the institutional restrictions which are placed by the government or by manufacturers' and retailers' organisations on entrepreneural market behaviour.

However the precise chain of effects set up by the impact of exogenous and endogenous variables on the means of competition and location may be more properly discussed later when interest is centred on the primary and secondary relations of outlet price and non-price offers and location.

Explanation of the Locational Structure of Groceries Retailing in Hobart

The interrelations of outlet location classified by regional market with outlet price and non-price offers help account for many of the outstanding features of the locational structure of groceries retailing in Hobart in 1964. They add to the partial explanations already given in the last two Chapters by the mutual relations of outlet location with outlet scale, competitive and costs and efficiency characteristics. On the basis of the interrelation of outlet price and non-price offers with outlet location classified by regional market, it seems that total profits attainable may be assumed to be higher for the outlets of the medium-upper income outer suburban markets than for the outlets of the lower-income inner city markets. The entrepreneurs in outer suburban markets can select and use ranges of goods which are diversified to include non-staple lines, more service, and not greatly increased prices to attract and hold a larger volume of custom, and to gain purchase price rebates and advertising assistance from manufacturers. Outer suburban market locations will therefore be very attractive to retail groceries outlet entrepreneurs. Conversely, total profits may be assumed to decline, but to remain above those necessary for continued operations, for many locations in the inner suburban markets. Opportunities appear to exist for profitable operations for a range of small scale businesses, since they appear to meet the needs of lower income, less mobile households by provided credit and delivery services, and even lower prices through the limiting of goods stocked to low quality and staple lines. Bearing all these considerations in mind, the following features of the locational structure of groceries retailing in Hobart seem readily explicable:[73]

(i) that there were relatively larger numbers of small scale outlets (general stores and groceries) in inner suburban markets;

(ii) that there were relatively fewer outlets in outer suburban markets and that, especially in the Sandy Bay and Glenorchy markets where customers had the highest mean aggregate household incomes, the outlets were comprised of higher proportions of larger-scale supermarkets and groceries.

PRIMARY AND SECONDARY RELATIONS - LOCATION, PRICE, SERVICE AND RANGE OF GOODS

The observed gross interrelations between outlet location and outlet price and non-price offers help account for the locational structure of groceries retailing in Hobart in 1964. They also give considerable support to the first and main hypothesis of this work: "that the locations of the outlets of a retail trade become significantly interrelated in predictable ways with many other of their own characteristics (including their price and non-price offers)". But a more detailed analysis remains to be made of the principal ways in which the observed gross interrelations may be effected through the impact of other exogenous and endogenous variables. That is, a more detailed analysis remains to be made of the important primary and secondary linkages of outlet location and outlet price and non-price offers.[74]

Such an analysis will give still further support to the first and major hypothesis of this work. It will help to show that not only may the hypothesis be used to identify the most important variables (such as outlet price and non-price offers) which are associated with an observed pattern of retail location, it may also be used to identify the precise pattern of cause-and-effect connections between observed retail locations and other variables. In addition, the more detailed analysis will give added substance to the explanation of the locational structure of Hobart groceries retailing which has just been provided by the interpretation of the overall relations of outlet location and price and non-price offers.

Outlet scale, outlet competitive characteristics and outlet customer characteristics are probably the most important endogenous variables which impinge upon the overall association of the means of competition and outlet location. During the description of the differences between the price and non-price offers of the outlets of different regional markets, it was necessary to make reference to the ways in which outlet scale, competitive characteristics and customer characteristics affected the means of competition and their association with outlet location.[75] In addition, in the two preceding Chapters, there was some examination of the linkages between outlet scale, outlet competitive characteristics, outlet customer characteristics, the means of competition and location (Figs. $\overline{1V}$. 6, $\overline{1V}$. 7, $\overline{1V}$. 8 and $\overline{V}$. 4).[76] However, the pattern of linkages which connect outlet price and non-price offers and outlet location can itself be shown to be affected by a most important exogenous variable, whose influence has not yet been discussed. This variable is the nature of currently-existing institutional restrictions by the government, or by manufacturers' and retailers' organisations on entrepreneurial market behaviour. Attention is now concentrated therefore on an analysis for Hobart's groceries outlets of the present pattern of linkages of outlet price and non-price offers, outlet competitive characteristics, outlet customer characteristics and outlet location, in the context of the current state of institutional restrictions on entrepreneurial market behaviour.

Price and Non-Price Offers, Location and Institutional Restrictions on Entrepreneurial Behaviour

There were only two important types of institutional restrictions which affected the price and non-price offers of Hobart's groceries outlets during the late 1950's and 1960's. The first set of restrictions were due to the influence of the Tasmanian Retail Traders' Association and its most important affiliate, the Master Grocers' and Storekeepers' Association of Tasmania (Hobart Branch). The second set of restrictions were attributable to the activities of the Tasmanian State Government in prescribing different trading hours for different types of groceries outlet, for outlets in different parts of Hobart, and for the sale of different types of product.[77]

The Tasmanian Retail Traders' Association

According to Mr. A.R. Pash, the Secretary of the R.T.A.[78] in 1964, the R.T.A. had about 1100 members or 90% of all retail storekeepers in Tasmania and 90% of the retailers in Hobart, in 1964. About 900 or 90% of the R.T.A. members were operators of groceries outlets and belonged to the affiliated Master Grocers' and Storekeepers' Association of Tasmania. However, although there was an active branch of M.G.S.A. in Hobart, membership had been fluctuating since 1957, and not all the largest groceries outlets were members. Mr. Pash stated that the desire to become members decreased as outlet scale increased. In the period following 1957 therefore, the influence of the R.T.A. was less over its larger than over its smaller members, and the R.T.A. had no influence at all over the entrepreneurs of largest outlets, the major supermarkets, whose membership lapsed or who did not apply for membership. Large-scale firms, especially chains, do not need the R.T.A's. service of "united action" with other retailers to protect and advance their interests as do smaller firms.[79]

Of particular concern here are the R.T.A's. efforts to establish and maintain a code of business ethics, which has considerate influence on the attitudes especially of smaller members to competition through price, service and advertising. Also of concern is the R.T.A's. provision of weekly and monthly price lists of recommended prices for the great majority of goods stocked in food outlets using "margins on cost which have been fixed traditionally as those necessary to cover the costs of the average retailer and give him a reasonable reward for the hours he works".[80]

The R.T.A's. attempt to establish a code of business ethics is revealed in its Constitution, which provides for the expulsion of any member if he

- - - "be guilty of any act, proceeding or practice which the Executive may consider to be dishonourable or to be inconsistent with his position as a member of the Association or to bring discredit upon the Association or to be otherwise inimical to its interests or if in the opinion of the Executive the interests of the Association require that any member shall cease to be a member".[81]

Very little information could be gained from members of the R.T.A. executive as to the particular sorts of "act, proceeding or practice" which would be considered undesirable. 'Loss-leader selling' (a form of price discrimination involving the heavy advertisement of an item below cost in order to attract customers to the store) was considered undesirable, as were two other practices (offering cut prices or special discounts on commodities on condition that customers purchase other goods of a specified value; advertisements stating or implying that a seller has a quantity of goods at a special price whereas in fact only a few are sold at that price) listed by the R.T.A. at the Royal Commission into Restrictive Trades Practices in Tasmania in 1964.[82] It seems reasonable to conclude from the sorts of practice publicly mentioned as undesirable, from the purpose of R.T.A. recommended prices to give the retailer "a reasonable reward" and from the interest of a majority of Hobart's groceries retailer members in "a fair, reasonable or comfortable living", that any practices which unduly encroached upon another member's "fair share of the market", or which could be regarded by a member as "attempts to drive him out of business", would probably be regarded as unethical. Such practices might not be regarded as sufficiently undesirable to require the expulsion of a member. But, even so, it seems reasonable to conclude that the recognition that any such practices would be viewed with disfavour by the trade, would certainly have a restrictive influence on the market behaviour of the 90% of Hobart's groceries entrepreneurs who were members. However, this restrictive influence would be less as the size of outlet increased, and as there would be less need for retail entrepreneurs to depend on the R.T.A. or to pay attention to the corporate body of retailer opinion which the R.T.A. represents and promulgates.

Besides the indirect controls exerted through a code of business ethics, the R.T.A. exercised a pervasive and direct influence on at least one of the means of competion, price, through its price lists published in This Week and The Tasmanian Trader. It is true that the R.T.A. left members free to select their own prices, and that the R.T.A. executive hoped "that grocers would use R.T.A. prices only as a guide and use their own initiative to find out the best price for their own situation". However, in 1964 an estimated 86/215 of Hobart's groceries retailers used R.T.A. prices exactly as they stood for at least some and often many goods. Even though members complained that R.T.A. prices were "unrealistic for stores facing intense competition in metropolitan areas,"[83] at least three conditions favoured their adoption. Firstly, in the case of the many (108/215) entrepreneurs who started in the trade after 1960, R.T.A. prices provided the only guide as to what prices to charge. Secondly, in the case of the 199/215 businesses which were operated as partnerships or sole proprietorships, pricing by R.T.A. prices was a welcome time and energy saver, given the many hundreds of goods which must be priced in a groceries outlet. Thirdly, since the prices were suggested as those "giving a reasonable reward for the labour of the average storekeeper", many entrepreneurs felt they had both a right and a moral obligation to charge them to "protect the legitimate income of themselves and their kind".[84]

The Circumstances working for the adoption of R.T.A. prices did not hold in the case of the larger groceries outlets, the majority of which were controlled by a public or private company, with experienced managers and staff at the helm, who would not regard themselves as "average members of the trade". Thus in the late 1950's and 1960's, the influence of the R.T.A. over the prices charged in outlets, as well as over the business ethics of their entrepreneurs, would be greater in the case of smaller than of larger outlets.[85]

The Tasmanian Government's Trading Hours Legislation

The main body of legislation governing the trading hours of groceries outlets in Hobart is embodied in the Shops Act, 1925, and subsequent amendments. The regulations which affected groceries outlets in Hobart in the 1960's are summarised in Table 6.7.

The regulations were clearly framed to restrict the trading hours of "large shops" more than those of "small shops", and to restrict the trading hours of shops in the inner and mid suburban markets (North Hobart, Central City, Moonah) more than those of shops in peripheral suburban markets (Glenorchy, Sandy Bay and Bellerive).[86] The regulations were also designed to provide extended trading hours for those entrepreneurs who carried certain products and product groups, namely, newspapers, magazines, periodicals and stamps or "exempted goods".[87] The Shops Act 1925 therefore gave greater opportunity to the small store and the store in the peripheral market to compete in one sort of service, longer selling hours. It also encouraged entrepreneurs to extend their range of goods to include exempted goods and products. This particularly applied to the entrepreneurs of small outlets in inner suburban markets, and by doing so they could obtain virtually unrestricted trading hours.[88]

Government trading hours legislation and the promulgation of an ethical code and pricing system by a retailers' organisation are two sorts of institutional restrictions on entrepreneurial behaviour which are common in many trades and countries.[89] But there have been very few studies of the ways in which they affect the market behaviour and the locations of enterprises in different retail trades. Since there is very little general theoretical or empirical knowledge on which to draw, only tentative suggestions can be made for the Hobart groceries trade concerning the precise ways in which the two types of institutional restrictions may affect the pattern of linkages of outlet competitive characteristics, outlet customer characteristics, outlet scale, outlet price and non-price offers and outlet location.

TABLE 6.7

TABLE 6.7

TRADING HOUR REGULATIONS FOR GROCERIES OUTLETS IN HOBART, 1964 (SHOPS ACT, 1925)

TYPE OF SHOP	LOCATION	TRADING HOURS LEGISLATION FOR THE WEEK DAYS	MAIN TRADING DAYS OF THE WEEK[a] SATURDAYS
Small shop [b]	City of Hobart and G'orchy[c]	6.00 am - 9.30 pm	5.00 pm - 7.30 pm
	Elsewhere	6.00 am - 9.30 pm	6.00 am - 1.00 pm) 5.00 pm - 7.30 pm)
Large shop	City of Hobart or G'orchy[c]	(6.00 am - 6.00 pm (Fri. only 6.00 am - 9.30 pm	
	Elsewhere	(6.00 am - 6.00 pm (Fri. only 6.00 am - 9.00 pm	6.00 am - 1.00 pm 6.30 am - 12.30 pm (newspapers)
Any shop, if a licensed news vendor, for the purpose of selling newspapers, periodicals, magazines, stamps [d]	Cityof Hobart or G'orchy[c]	6.00 am - 8.00 pm; (nspprs) 6.00 am - 6.00 pm (other goods, exc. Fri. to 9.00 pm)	6.30 am - 1.00 pm (other goods)
	Elsewhere	6.30 am - 9.30 pm; (nspprs) 6.00 am - 6.00 pm (other goods exc. Fri to 9.00 pm)	6.30 am - 12.30 pm and then 5.00 pm - 9.00 pm (nspprs)
Any shop, selling exempted goods, for the purpose of selling exempted goods [e]	City of Hobart or G'orchy[c]	Anytime, but must close 9.30pm Friday till 6.00 am Mon. unless a small shop	small shops only - any time
	Elsewhere	Anytime	Anytime
THE MINISTER FOR LABOUR AND INDUSTRY ON THE ADVICE OF THE SECRETARY, CAN EXEMPT ALL STORES IN 'RURAL AREAS' (beyond 7 miles from the G.P.O.) FROM ALL THE ABOVE REGULATIONS			

a Under the Sunday Observance Act, 1908, no shops could open on a Sunday except to supply exempt goods between the hours of 6.00 am and 9.30 pm or to supply newspapers between the hours of 9.00 am and 9.00 pm. (See list of exempt goods, note d). No shops could open at all on Christmas Day, Good Friday or Anzac Day.

b " A person can be registered as a small shopkeeper if he is:

i a person who is not employed or engaged in any other business;

(Cont.)

TABLE 6.7 (Cont.)

TRADING HOUR REGULATIONS FOR GROCERIES OUTLETS IN HOBART, 1964 (SHOPS ACT, 1925)

b (cont.)

ii who is not a registered partnership or firm, not being a partnership the sole partners in which are a person and his spouse or a person and his child;

iii who is not acting as an agent for any other person;

iv who does not employ more than two licensed small shop assistants if he is the licensed shopkeeper. If it is a partnership as set out in (ii) then only one member of the family can be a licensed shop assistant. A licensed small shop assistant can be any member of the licensed shop keepers' family. "Family" means the husband, wife, children, step-children, grandchildren, parents and grandparents of the shopkeeper. Provided that if two assistants are licensed, one must not be over the age of 18 years. No person can be licensed as an Assistant who is employed elsewhere than in such a shop." (Information leaflet available from Department of Labour and Industry, February, 1965).

c The City of Hobart and Glenorchy cover the western shore section of the Central City market, the North Hobart market, the Moonah market, the Glenorchy market and the northern half of the Sandy Bay market. The Bellerive market lay in the Clarence Municipality, while the southern half of the Sandy Bay market lay in the Kingborough Municipality.

d Newsvendors licenses are not granted to the largest scale groceries outlets (Supermarkets).

e Exempted goods were: Bread, cakes, pastry, tarts, pies and other goods of a like nature; confectionery and sweetmeats of every description; cooked meats, icecream and ice blocks; milk, milk drinks, soda fountain drinks and other non alcoholic drinks; fresh fruits and vegetables of all kinds; fresh or cooked fish of every description; potato chips; tobacco, cigars, cigarettes, cigarette papers, snuff and matches; articles usually sold to tourists as souvenirs or mementoes; stationery,; cream; eggs; honey; breakfast cereals; butter; cut flowers; photographic films.

Source: Shops Act, 1925 (16 Geo. V No. 29), as amended at February 1st, 1965, reprinted from Tasmanian Statutes 1826 - 1959, Act Serial No. 363, (Hobart: Government Printer), 1965.

Influence of the R.T.A. on the linkages of outlet scale, outlet competitive characteristics, and outlet price and non-price offers. The influence of the local Retail Traders' organisation, the R.T.A., on business ethics and pricing is less for larger than for smaller groceries outlets. This means that the entrepreneurs of larger-scale groceries outlets in Hobart will feel freer to compete actively in any way within the law, to maximise their profits or to achieve some satisfactory level of returns. Especially, the entrepreneurs of larger scale outlets will feel free to adopt their own pricing policies, irrespective of customary trade margins or R.T.A. recommended prices.

It may be expected, therefore, that, should there be any significant increase in the scale of Hobart's groceries outlets, the influence of the R.T.A. will decline. This will pave the way for a change in market structure from imperfectly competitive local markets with relatively large numbers of smaller competitors, to actively competitive oligopolistic local markets with relatively smaller numbers of larger competitors. However, the change in local market structure might not occur in a few cases where distance from major competitors, or other factors, intervene to mitigate the need or desire of larger-scale entrepreneurs to become more competitive. But, in general, the competition in local markets will become more aggressive following an increase in outlet scale, which in turn will set up pressures for still greater abandonment of the restrictions placed by trade ethics and traditionally adopted pricing systems; this again will lead to still more actively competitive markets. Thus, in a situation where the membership of a retailers' organisation loses its appeal to large-scale outlet entrepreneurs, the conditions are provided for radical alterations in local market structures, should an increase in outlet scale occur. This suggestion is in accord with the findings of some studies of changes towards less imperfectly competitive markets for retail goods following increases in outlet scale and the failure of retailers' organisations to substitute new appeals for large-scale enterprise for the old one of 'small-store united action'.[90]

The decline in the influence of the R.T.A. as the scale of Hobart's groceries outlets increases will not only have a general effect on competition. It will also have some particular effects on outlet price and non-price offers. Rejection of the 'fair shares of the market' ethics and retailers' organisation prices will make entrepreneurs freer to adapt their price and non-price offers to encroach on competitors' market areas; to use cut price "specials" and to indulge in price discrimination (including loss-leader selling); to form price and non-price offer combinations to suit the particular socio-economic characteristics of their customers; and to arrange independently for joint retailer-manufacturer advertising whether the trade would classify the advertising as excessive or misleading or not. Therefore, as outlet scale increases in a situation where the influence of the retailers' organisation is less for larger than for smaller outlets, there will be increasing differentiation of the combinations of outlet price and non-price offers as they are tailored to suit the particular trading conditions

faced by individual entrepreneurs. At least some of the combinations may involve the use of lowered price levels (e.g. through the increased use of widely advertised 'specials') in place of the traditional trade services with higher price levels.[91]

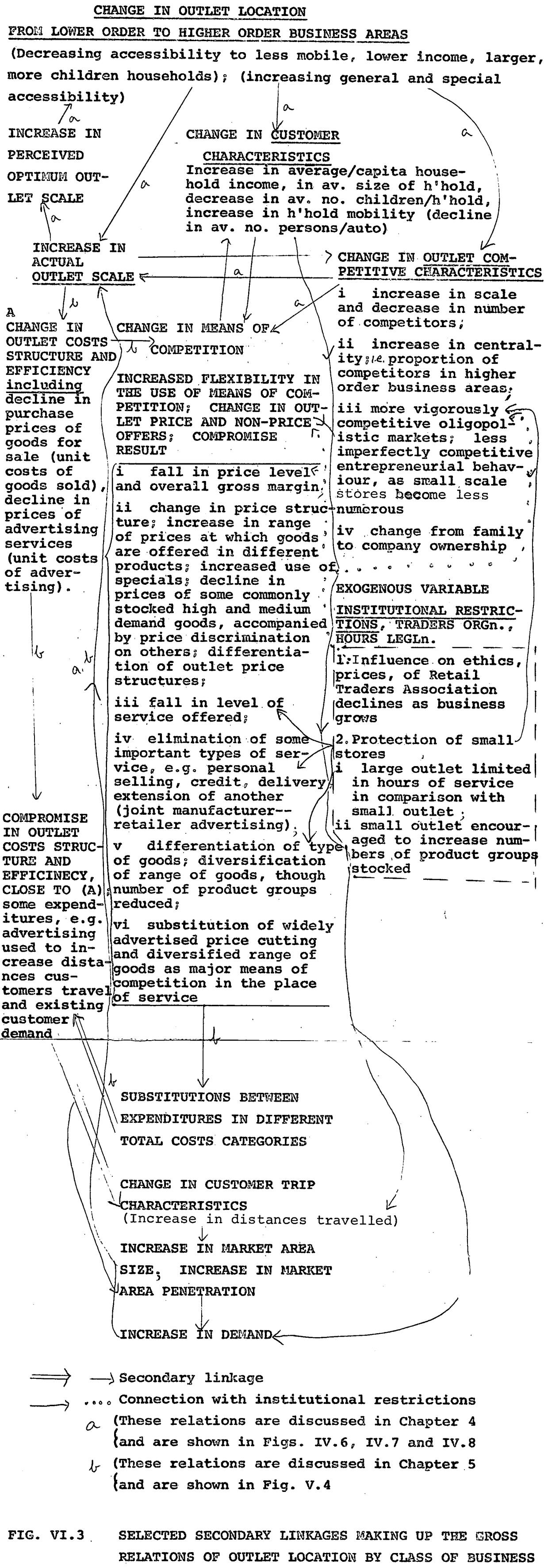
These changes in outlet price and non-price offers will be directed towards still further possible increases in outlet scale and profits. Some further increases in outlet scale will be gained by the ability of price and non-price offers which are tailored to local conditions to attract customers from greater distances (increasing market area size), and to increase the expenditures of customers within the existing market area (increasing market area penetration). Since changes in outlet price and non-price offers (for example, in the provision of credit and advertising services) will also involve changes in expenditures in different costs categories, alterations in the costs structures of outlets will also occur. But any further increases in outlet scale will lead to a further decline in the influence of the R.T.A., to still more vigorously competitive markets, and to the possibility of still more flexible use of the means of competition to increase market area size and penetration.

Thus, in a situation where the local retailers' organisation has less influence over larger than over smaller stores, there will be radical but predictable changes in outlet competitive characteristics, outlet price and non-price offers, outlet costs structures, outlet market area sizes and penetration, and in outlet scale and profits, following any initial increase in outlet scale.

Influence of the R.T.A. on the linkages of outlet location and outlet price and non-price offers. Now a significant increase in groceries outlet scale in Hobart is attained following a change in outlet location from the many lower order to the few upper order business areas, which are of high general and special accessibility, and which are most accessible to the most mobile, medium-high income, smaller, older households. A significant increase in groceries outlet scale is also attained following a change in outlet location from inner suburban to outer suburban markets, which have greater accessibility to an increasing number of larger, younger households in medium-high income areas.

The increased possible scale of output will cause a change in groceries outlet location from lower to higher order business areas and from inner to outer suburban markets. But, given the current situation where the restrictive influence of the R.T.A. will decline following an increase in scale, these changes in groceries outlet location will not only result in desired increases in outlet scale. They will also cause firstly, increasingly active oligopolistic entrepreneurial competition (unless entrepreneurs are protected by distance from their major competitors, as they are, for example, in the peripheral markets of Bellerive and Glenorchy); secondly, freedom for entrepreneurs to differentiate outlet price and non-price offer combinations to suit local market conditions and to use cut price 'specials' and price discrimination to do so; thirdly, changes in outlet costs structures; fourthly, increases in market area size and

FIGS. VI.3-4



⟹ ⟶ Secondary linkage

⟶ .... Connection with institutional restrictions

a (These relations are discussed in Chapter 4 and are shown in Figs. IV.6, IV.7 and IV.8

b (These relations are discussed in Chapter 5 and are shown in Fig. V.4

FIG. VI.3 SELECTED SECONDARY LINKAGES MAKING UP THE GROSS RELATIONS OF OUTLET LOCATION BY CLASS OF BUSINESS AREA AND OUTLET PRICE AND NON-PRICE OFFERS

The changes which are described are envisaged as occurring firstly, temporally, and secondly, spatially. For, given the assumptions underlying this work, a pattern of temporal relations will be reflected in an analagous pattern of spatial relations, and a pattern of spatial relations will be a reflection of an analagous pattern of temporal relations. The assumptions and the nature of spatial and temporal relations are elaborated in Chapter Three. The changes which are described are also general changes which will occur on the average for the whole group of retail outlets comprising a retail trade, not necessarily the changes which will occur for any particular outlet.

TABLE 6.8

TABLE 6.8

ASSOCIATIONS OF OUTLET LOCATION, OUTLET PRICE AND NON-PRICE OFFERS, OUTLET SCALE, OUTLET COMPETITIVE CHARACTERISTICS AND OUTLET CUSTOMER CHARACTERISTICS UNDER R.T.A. AND SHOPS ACT RESTRICTIONS ON COMPETITION

LOCATION	SCALE, BUYING, SERVICE			R.T.A. INFLUENCE		SHOPS ACT RESTRICTIONS		COMPETITION		PRICE		OFFERS		SERVIC		RANGE OF GOODS				CUSTOMER CHARACTERISTICS				COSTS	SUBSTITUTIONS			M.A. SIZE
	MEAN AV. WEEKLY TKGS ($A)	PROPN ENTRE-PRNRS BUYING DIRECT FROM MNFR	MEAN AV.% GOODS SOLD SELF SRVCE	Pn ENTRE-PRNRS USING R.T.A. PRICES	Pn ENTRE-PRNRS OPERA-TING TO MAX. PROFITS	Pn OUT-LETS WITH SATDAY TRADG	Pn OUTLETS WITH SUNDAY TRADG	Pn ENTRE-PRENRS FEARG. COMP. RETALN	Pn OUTLETS WITH < 5 COMPET-ITORS	MEAN RELA-TIVE PRICE INDEX	MEAN % TKGS FROM SPEC-IALS	PRICE (c) TINNED BABY FOOD LINE	PRICE (c) JAM LINE (IXL)	Pn OUTLETS OPEN > 60 HOURS/ WEEK	Pn O'LETS WITH INDEP-ENDENT ADVERT.	MEAN TOTAL PRODUCT GROUPS OMITTED	MEAN TOTAL PRDCTS OMITTED	MEAN OVRALL RANGE OF GOODS INDEX	MEAN RANGE OF GOODS: BABY FOODS	H'HOLD INCOME ($A) a	H'HOLD CAR OWNER-SHIP a	H'HOLD SIZE a	H'HOLD AGE STRUC-TURE a	MEAN AV. WEEKLY COSTS OF GOODS SOLD($A)	MEAN AV. WEEKLY WAGES ($A)	MEAN AV. WEEKLY ADVERT. EXP. ($A)	MEAN AMOUNT OUT ON CREDIT ($A)	MEAN Pn CUSTOMERS FROM < 1 MILE
BUSINESS AREA CLASS																												
N1	2733	.26	44.5	.47	.42	.36	.21	.10	.68	.967	7.1	9.2	28.1	.32	.32	7.1	27.5	331	75	845	4.14	3.88	1.38	2465	132	29	163	.39
N2	1200	.04	42.5	.56	.34	.65	.30	.13	.47	.978	6.2	9.1	27.8	.48	.35	9.0	25.0	253	52	995	3.30	3.78	1.22	877	74	4	601	.60
N3	880	.05	12.4	.76	.55	.50	.52	.02	.68	.981	4.7	10.0	29.3	.47	.05	8.4	30.9	177	31	843	4.91	3.98	1.56	692	44	5	341	.67
N4	679	.00	5.7	.72	.39	.67	.63	.04	.59	.990	6.5	10.2	28.6	.56	.02	8.3	27.4	165	34	898	3.40	3.72	1.24	516	34	1	634	.74
J1	1763	.28	25.7	.66b	.27	.00	.00	.22	.16	.969	5.4	9.3	26.8	.00	.28	6.8	35.3	220	41	852	3.05	3.69	.95	1516	129	28	91	.41
J2	12100	1.00	95.0	.00	1.00	.00	.00	1.00	.50	.944	15.0	7.0	28.3	.00	1.00	9.5	6.5	697	159	1125	2.74	3.08	.78	9340	752	130	1000	.33
J3	842	.00	32.1	.87	.12	.25	.12	.00	1.00	.974	3.6	9.5	27.1	.25	.00	8.3	28.5	259	38	773	3.43	3.86	1.19	684	40	2	819	.70
J4	639	.00	6.3	.87	.56	.81	.75	.00	.50	.991	1.0	9.6	29.1	.88	.06	7.3	37.5	130	16	778	3.72	3.93	.87	430	36	0.3	470	.85
REGIONAL MARKET																												
C.CITY	1084	.10	17.0	.79	.38	.52	.41	.07	.40	.986	4.4	9.8	28.0	.37	.10	7.7	33.0	186	34	2408	.97	.20	.97	858	63	10	246	x
N.HOBART	774	.02	14.9	.71	.32	.52	.47	.01	.32	.979	4.0	10.3	29.2	.43	.08	7.5	27.7	186	28	2720	1.11	.23	1.11	670	47	2	473	x
MOONAH	1182	.10	12.4	.70	.48	.58	.61	.19	.67	.979	7.0	9.2	28.5	.45	.13	8.3	31.3	190	31	2600	1.03	.23	1.03	970	58	9	365	x
G'ORCHY	1337	.06	12.2	.68	.56	.53	.62	.03	.87	.990	10.7	9.5	28.2	.34	.13	9.3	20.5	209	42	2834	1.04	.26	1.04	1036	56	10	888	x
SANDY BAY	1223	.13	32.7	.50	.50	.50	.06	.18	.93	.981	3.5	10.9	28.1	.06	.19	8.1	31.9	269	37	3536	1.40	.21	1.40	2136	147	18	719	x
BELLERIVE	2192	.06	37.6	.56	.37	.68	.56	.00	.93	.982	7.9	9.1	27.7	.06	.25	8.8	26.4	256	55	2808	.81	.25	.81c	882	86	6	470	x

x Not estimated

—— Value reflecting specialisation in a price or non-price offer, and differentiation of combinations of price and non-price offers in different locations.

a For business area classes: (for households using groceries outlets; estimated from data for sampled customers): Mean Av. Income/Person/Household, Mean Persons/Auto/Household, Mean Persons/Household, Mean Juvenile Dependents (< 17 years)/Household.

a For regional markets: (for all households in market; estimated from Hobart Area Transportation Study data): Median Annual Aggregate Household Income, Mean Autos/Dwelling unit, Mean Persons/Dwelling unit, Students/Population. (Table 2.17(i)).

b Values reflect the combination of a high proportion of small stores with a few large ones in the C.R.A.

c Many children in the Bellerive market are not of school age. The age structure of this market is much more youthful than this figure suggests.

Sources: Statistical Appendix 4 - Tables 4.1,4.10 to 4.13,4.24,4.25,4.42,4.46 to 4.51, Statistical Appendix 5 - Tables 5.1,5.2,5.4,5.7,5.9 to 5.11,5.18, Stat. App. 6 - Tables 6.1 to 6.3,6.5, Stat. App. 7 - Table 7.1(i).

penetration; and, lastly, further increases in scale. Further shifts in location will also occur as new entrants perceive the scale and profits possibilities in upper order busines area locations and in outer suburban markets, and as some of the competitors in less favourable locations are eliminated. Thus a pattern of strong, predictable secondary linkages will exist of outlet scale, outlet competitive characteristics, outlet price and non-price offers, outlet customer characteristics, outlet location and other variables. This pattern will interrelate outlet location and outlet price and non-price offers, and will be shaped by the institutional restrictions of the local traders' organisation.

The pattern of secondary linkages may be approached from another direction. Given that the R.T.A. is currently a type of organisation without appeal to large-scale enterprise, as the scale of groceries outlet in Hobart increases to take advantage of changes in retail technology (e.g. self-service techniques) and in the organisational structure of distribution (e.g. closer manufacturer-retailer relations), the restrictive influence of the R.T.A. will decline. Entrepreneurs will become more actively and oligopolistically competitive, and make more flexible use of the means of competition to try to increase their scale. But since the locations which permit the greatest increases in scale and profits are in the upper order business areas and outer suburban markets, a change in outlet location will occur from inner suburban markets to outer suburban markets, and from lower order to higher order business areas.[92]

Comparison of suggested linkages with 1964 data for Hobart's groceries outlets. Figs. V1. 3 and V1. 4 summarise diagrammatically the suggested influence of the local traders' organisation on the pattern of linkages of outlet price and non-price offers, outlet competitive characteristics, outlet scale, outlet customer characteristics, outlet location, and other variables. If the relations of Figs. V1. 3 and V1. 4 hold currently for Hobart's groceries outlets, the data for a 1964 cross-section of them should display the following spatial associations. A change in outlet location from lower order (N2 to N4; J3, J4) to higher order (N1, J1, J2) business areas, or from inner suburban (Central City, North Hobart) to outer suburban (Moonah, Glenorchy, Sandy Bay, Bellerive) markets should be associated with :

(i) an increase in outlet scale, accompanied by an increase in the proportion of entrepreneurs 'dealing direct', and in the quantity of goods sold self-service;

(ii) a decline in the influence of the R.T.A. (shown by a decline in the proportion of entrepreneurs using unmodified R.T.A. prices, and an increase in the proportion of entrepreneurs pricing to maximise profits, rather than to gain a fair share of the market);

(iii) increasingly active oligopolistic competition, except where entrepreneurs are protected by distance from their major competitors (e.g. in the Glenorchy, Bellerive markets) (shown by an increasing proportion of entrepreneurs fearing retaliation by

competitors, and a decreasing proportion having over five competitors);

(iv) differentiation of combinations of outlet price and non-price offers especially by the differentiation of price structures and range of goods; increased use of 'specials' combined with price discrimination; specialisation in different price and non-price offer combinations (for example, where the effects of increased scale on prices of goods for sale and advertising are predominant, combinations of widely-advertised cut price goods, price discrimination, and diversified ranges of goods may appear; where the effects of increased incomes and mobility of customers are predominant, distinctive combinations of more service and extended ranges of goods without greatly increased prices may appear);

(v) substitutions between expenditures in different costs categories, governed by specialisation in different means of competition;

(vi) an increase in market area size and penetration, shown by a decline in the proportion of customers coming from more than one mile away.

Table 6.8 shows how these associations held for Hobart's groceries outlets in 1964. It may therefore be concluded that the institutional restrictions by the R.T.A. on entrepreneurial behaviour have an important influence on the current pattern of relations of groceries outlet location and the means of competition, in the ways summarised in Figs. VI. 3 and VI. 4 .

Influence of the Shops Act on the Means of Competition

The trading hour restrictions which are enforced by the Tasmanian Government have a different impact from the controls exercised by the R.T.A. The legislation is designed to protect the smaller-scale outlet from the competition of the largest-scale outlets which are the dominant members in all local markets (Fig. IV. 3). The legislation is designed to do this in a situation where the influence of the local Traders' organisation over small scale outlets, but not over large ones, will already have impeded the smaller outlets entrepreneurs' ability to compete with each other and with large-scale competitors. Small store members of the R.T.A. will be protected against the activities of other small-store entrepreneurs with similar ethics and pricing practices, but will have little protection against the encroachment of large-scale entrepreneurs who do not recognise the same code of ethics, or adopt the same pricing methods. The Shops Act protects the "small shopkeeper" against the large-scale competitor by offering him the privilege of weekend and late night trading, and virtually unrestricted trading hours should he stock exempted goods (Table 6.7). This will have the effect of enabling entrepreneurs of small stores only to specialise in the convenience of longer hours of personal (or self-service) selling as a major means of competition. It will also have the effect of encouraging the small-scale outlet entrepreneur to be competitive to some extent in product variety by increasing the number

of products stocked to include exempted goods.

Extended hours of service and extended ranges of goods will be particularly advantageous to the small shopkeepers in the inner city markets and in the Moonah market, where the entrepreneurs of the largest-scale groceries outlets cannot open at all at weekends, even if they stock exampted goods (Table 6.7). The least degree of protection will be afforded to the small-scale outlets in outer suburban markets, which lie outside theboundary of the protected area, and "seven-mile limit from the Hobart G.P.O., or outside the cities of Hobart and Glenorchy (Table 6.7). In these areas there is very little discrepancy between the trading hours for large and small stores. Small store entrepreneurs here will have no special inducement to specialise in long hours of counter selling as their major means of competition, or to extend into the product groups which include exempt goods.

The Shops Act will also tend to discourage the growth of small-scale stores, since small shopkeepers who desire to compete actively and successfully stand in danger of losing their small shop licence and privileges. The legislation will thus act to maintain the status quo as far as existing small shops are concerned, although it will have less effect on the growth of small shops in outer suburban than in inner suburban markets. Small shop entrepreneurs in outer suburban markets have fewer privileges to lose.

Influence of the Shops Act on the Secondary Linkages of Outlet Price and Non-Price Offers and Outlet Location

The Shops Act will have two different sorts of impact on the relations between the means of competition, the competitive characteristics and the locations of Hobart's groceries outlets. The first will occur as a result of the influence of the Act on small-scale outlets in general, the second as a result of the effects of the Act on outlets in outer suburban markets.

In the first case, the Shops Act will create a situation where small shopkeepers in imperfectly competitive markets will specialise in long hours of personal selling as at least one, and perhaps their only means of competition against the largest-scale outlets in their local markets. They will be able to offer a higher level of service to justify their higher price levels, and they will have little inducement to abandon R.T.A. prices and "fair share of the market" ethics by price cutting and greater use of advertisement in the place of traditional service to increase their scale.

It has already been shown how large-scale outlets will compete in an increasingly vigorous oligopolistic market in an attempt to gain still greater increases in scale. With the increase in scale of at least some of the larger scale outlets, the Shops Act's protection of smaller-scale outlets in imperfectly competitive markets will lead to an increased number of scales of outlet for the sale of groceries, to an increasing diversity of market structures, and to an increased variety of combinations of price and non-price

offers. The entrepreneurs of larger stores, who will concentrate on widely advertised price cutting and increased ranges of goods, or upon the provision of services where the socio-economic characteristics of customers make them profitable, will increasingly contrast with the entrepreneurs of small stores who concentrate on a comparable number of product groups and service in the form of long hours of personal selling.

In this first case, in Hobart, the significant increases in outlet scale which will generate these changes in outlet competitive characteristics and the means of competition will occur with a change in outlet location from lower order to higher order business areas.[93] If these relations hold over the current middle-run period for Hobart's groceries outlets, the data for a 1964 cross-section of them should reveal the following spatial associations. A change in outlet location from lower order to higher order business areas should be associated with

(i) an increase in outlet scale from the very small to the very large;

(ii) a decline in the proportion of outlets with extended trading hours;

(iii) a change in local market structures from imperfectly competitive to vigorously competitive oligopolistic forms;

(iv) a fall in the level of service offered;

(v) substitution of widely-advertised price-cutting and diversified range of goods as the major means of competition in place of service, and the elimination of long hours of personal selling and of the traditional credit and delivery services, except where special demands for them exist. Table 6.8 shows that these associations did appear to hold for Hobart's groceries outlets in 1964.

In the second case of the outlets of the different regional markets, entrepreneurs of large-scale outlets in peripheral areas will not be unduly restricted in their hours of trading in comparison with the entrepreneurs of smaller-scale outlets. It will be expected therefore that all entrepreneurs of outer suburban markets will be able to tailor their price and non-price offers, including their selling hours, to their particular trading conditions. None will be discouraged from increasing in scale, and only entrepreneurs far from major competitors will be protected from any change in market structures towards more active oligopolistic forms following any increase in outlet-scale. On the other hand, small shopkeepers in inner suburban markets will tend to keep their outlets small, to remain competitively inactive, and to specialise in long hours of personal selling, a reasonable array of product groups, and traditional credit and delivery services as their major means of competition.

These effects of the Shops Act will reinforce any tendencies in this direction which arise through the restrictions which their own income,

low mobility customers place in their growth, and on the sorts of service for which they are willing to pay.

If these relations hold for Hobart's groceries outlets, the data for the 1964 cross-section of them should display the following spatial associations. A change in outlet location from inner to outer suburban markets will be associated with

(i) an increase in outlet scale;

(ii) the tailoring of combinations of outlet price and non-price offers to suit particular market conditions;

(iii) an increase in the level of service, although the provision of long hours of personal selling will decline (at least in the peripheral markets of Sandy Bay and Bellerive which mostly lie outside the City of Hobart and Glenorchy trading zone, and where small shops have no marked trading hour advantages over large ones);

(iv) a decline in the number of major product groups carried; although the number of goods and the number of products in remaining groups may be increased;

(v) an increase in the competitiveness of entrepreneurs, except in the Bellerive and Glenorchy markets where they are at some distance from their major competitors. Table 6.8 shows that these associations did appear to occur for Hobart's groceries outlets in different regional markets in 1964.

Figs. V1. 3 and V1. 4 show diagrammatically the impact of the Shops Act, 1925 on the pattern of secondary linkages connecting groceries outlet means of competition and groceries outlet location by class of business area and regional market. In each diagram, the effects of the Shops Act have been combined with the effects of the decline in the R.T.A's influence with an increase in outlet scale. Each diagram therefore shows the ways in which both sorts of institutional restrictions on the Hobart groceries trade affect the pattern of secondary linkages connecting outlet means of competition and outlet location.

Figs. V1. 3 and V1. 4 show that a pattern exists of strong predictable linkages between groceries outlet location, scale, competitive characteristics, customer characteristics and price and non-price offers. The figures show how this pattern comprises the overall interrelations of outlet location and price and non-price offers, which were described and interpreted earlier, and which helped account for the locational structure of groceries retailing in Hobart in 1964.

The existence of the pattern of linkages of Figs. V1. 3 and V1. 4 in the case of Hobart's groceries outlets gives further support to the first and main hypothesis of this work:
"that the locations of the establishments of a retail trade become significantly interrelated in predictable ways with many other of their own characteristics (including their price and non-price offers)".

The pattern of secondary linkages of Figs. V1. 3 and V1. 4 also gives unexpected support to the second hypothesis of this work: "that the locations and other characteristics of the establishments of a retail trade become significantly interrelated in predictable ways with each others' locations and other characteristics,in the process of competition for revenue". For, looking at the relations of Figs. V1. 3 and V1. 4, which have been verified in the case of Hobart's groceries outlets, it can be seen that changes in outlet location have predictable effects on outlet price and non-price offers, market area sizes and competitive characteristics, including the numbers, sizes and locations of competitors and thus many other of their characteristics. And, in turn, changes in outlet competitive characteristics, including the numbers, sizes and locations of major competitors, have predictable effects back on the means of competition, scales, price and non-price offers, market area sizes and locations of groceries outlets. Unfortunately, it is not possible to go into the details of the complex series of interactions here.

CONCLUSIONS

This Chapter, centring on the relations of Hobart groceries outlet location and price and non-price offers, has given considerable support to the two hypotheses of this work, and has helped to account for the locational structure of groceries retailing in Hobart in 1964. The support given to the two hypotheses, and the particular network of relations discovered in the Hobart case, leads finally to certain conclusions concerning the wider theoretical and empirical implications of the analysis.

Implications for Future Theoretical Studies of Retail Location

Firstly, the appearance in Hobart of the hypothesized strong, predictable interrelations of outlet location and outlet price and non-price offers suggests that existing theories may be inadequate for the explanation and prediction of retail location. For there is no single body of theory which embraces the observed sorts of overall interrelation of location and of price, service and range of goods, be it current location, price, competition or marketing theory, and be it applicable to firms in general or to retail firms in particular. There is therefore no body of theory either which embraces the linkages which have been found to compose the interrelation of outlet location and price and non-price offers, namely, the linkages between outlet location, scale, competitive characteristics, customer characteristics and price and non-price offers, as they are shaped by common institutional restrictions on retail entrepreneurial behaviour. Indeed there is currently very little attention paid in theory at all to the relationships between retail outlet price offers, service offers and range of goods and retail outlet location.[94]

It seems to be particularly regrettable that there has been little or no theoretical analysis of the ways in which the multiproduct, multiproduct-group and multigood nature of retail outlets might bear on the relations of outlet price and non-price offers and location. For the study of Hobart's groceries outlets suggests that variations within the city in the price and non-price offers of the outlets of a given trade, and the general level of price and service in a trade within a city, and retail market behaviour, and the locational structure of a retail trade, may not be understood without reference to the 'multiproduct firm'.[95] An orderly pattern emerges in Table 6.8, and Figs. VI. 3 and VI. 4 of groceries outlet price and non-price offers, scale, competitive characteristics and location, which is clearly dependent upon the multiproduct nature of the retail firm. This orderly pattern seems to suggest that there might be a need to extend the embryonic economic theory of the multi-product firm to help account for the retail price and non-price offers, market structures and location.[96]

The pattern which emerges in the case of Hobart's groceries outlets also seems to suggest some major deficiencies in the principal body of retail location theory, central place theory. No version of the theory explicitly predicts the hypothesized and observed relations

which are described in this Chapter and summarised in Figs. V1. 3 and V1. 4, and which are important predictable causal associations of retail location with outlet price and non-price offers and other variables. The inadequate predictions of central place theory are the direct outcome of the fact that certain assumptions are made which are inconsistent with the findings from the study of Hobart's groceries outlets.

Firstly, it is assumed that the price and non-price offers of the individual outlets within a particular business type (e.g. general stores) or within a particular trade (e.g. the groceries trade) will not be strongly differentiated. This enables one key assumption to be made, that for the outlets of a particular business type or trade, a theoretical maximum market area size exists ("the range of a good") which will not vary significantly between different outlets because of the possible effects of significant differences in outlet price and non-price offers on customer travel behaviour. In theory, the locations of the outlets of a particular business type or trade are directly dependent on "the range of a good".[97] It follows from these assumptions that, in the development of the theory, alterations in outlet price and non-price offers are assumed to have no major effects on the locations of retail outlets, although they may be associated with minor variations in market area sizes.

In addition, it is assumed in the theory that significant differences in local market structures are not faced by the entrepreneurs of the outlets of the same or different business types, and, further, that outlets of different business types within the same trade (supermarkets, groceries and general stores) do not compete with each other. Thus variations in local market structures can have no significant influence on outlet price and non-price offers, and no significant influence on theoretical market area sizes or the locations of outlets.

All these assumptions are a reflection of a further one, that homogeneous outlets within each of a given set of business types are 'a priori' givens, although the analysis in this Chapter suggests that they emerge from a pattern of adjustments which the entrepreneurs of outlets in a given trade make in location, scale, price and non-price offers and other operational characteristics, under varying market conditions.[98]

From the study of Hobart's groceries outlets, it seems possible that an accurate explanation of the locations of the outlets of a retail trade or business type – that is, an explanation which not only correctly predicts the locations of retail outlets, but also correctly identifies the important variables affecting retail locations and the ways in which they do so – cannot be given by a theory which starts with 'a priori' assumptions of homogeneous given 'business types', with individual outlets which are not significantly differentiated with respect to their price and non-price offers, and whose entrepreneurs face no variations in local market structures.[99]

But if central place theory does not correctly or sufficiently emphasise the differentiation of retail outlet-price and non-price offers

and market structures when making explicit locational predictions, there is no version of price or competition theory which describes the differentiation of firm price, service and range of goods and which correctly or sufficiently predictstheir connections with retail location.[100] More specifically, there is no economic theory which explicitly embraces the range of relations shown in Figs. V1.3 and V1.4 and Table 6.8, between outlet locations, price and non-price offers, costs, demand and market behaviour.

To account for the locations of retail outlets therefore, it is possible that a new theory is needed, which will be oriented along the lines suggested by the two hypotheses, and which embraces and improves upon current location, price, marketing and competition theory. Admittedly, the complexity of the market behaviour and price and non-price offers observed for Hobart's groceries outlets suggest that the development of any such theory will not be easy. But the regularities observed also suggest that a sort of spatial order exists which could be explicable using current theoretical ideas.

Lastly, the hypothesized relations and the observed relations for Hobart's groceries outlets seem to reveal the need for a dynamic theory of retail location. For the relations comprise a systematic sequence of spatial and temporal changes in retail outlet location, outlet price and non-price offers and other variables, which can be predicted only by a dynamic spatial model. In addition, the hypothesized and observed pattern of relations are dependent upon the current state of at least one exogenous variable, the current nature of restrictions placed by the local retailer's organisation and by the government on entrepreneurial market behaviour. The pattern of the observed and hypothesized relations may be assumed to be stable only over a middle-run period, for the nature of the controls of the R.T.A. and the government trading hours legislation may change. Ideally, a long-run dynamic spatial model may be necessary to predict the different patterns of relations of retail outlet locations, price and non-price offers and other variables, which might occur in different middle-run periods with changes in the exogenous variable.

Implications for Future Empirical Studies of Retail Location

The relations which have been hypothesized and then observed in the case of Hobart's groceries outlets have wider empirical as well as wider theoretical implications. They can be used with caution to make some suggestions concerning trends in, and plans for retailing in Western cities in general, and in Australian cities in particular.[101]

Firstly, suggestions can be made concerning the recent and widespread phenomenon of the suburbanisation of retailing, that is, concerning the change in the locations of the outlets of many trades and in many cities from inner suburban to outer suburban areas. Secondly, suggestions can be made concerning the recent

decline in many cities of the small corner store and the neighbourhood shopping centre, and the rise in importance of the regional shopping centre; that is, concerning the change in the locations of retail outlets supplying convenience goods from lower to higher order business areas.

It is true that the analysis in Hobart was confined to only one sort of convenience goods trade, the groceries trade. However, the relations in Figs. $\overline{V1}$. 3 and $\overline{V1}$. 4 and the data in Table 6.8 suggest that, for any particular convenience goods trade, both types of change in retail location could be connected with the common decline in the influence of retailers' organisations as firms increase in size, and with the presence of normal forms of trading hours legislation which act to protect small stores, particularly those in inner suburban areas.[102]

The relations in Figs. $\overline{V1}$. 3 and $\overline{V1}$. 4 and Table 6.8 also suggest how both sorts of institutional control might affect the suburbanisation of a convenience goods trade and the decline of the corner store and convenience goods centre. As retail outlet scale increases — for example, in order to gain the advantages of self-service operations and closer manufacturer-retailer relations — the influence of the local trader's organisation declines and some restraints on competition disappear. The local markets within the city in which the convenience goods outlets operate become much less imperfectly competitive, with entrepreneurs, especially those of the largest-scale outlets, being freer to take advantage of any opportunity to fashion their price and non-price offers to suit local trading conditions, and thus to increase market area size. But the greatest success in the increasingly less imperfectly competitive markets will be gained by outlets in the highly accessible upper order business areas and in the outer suburban markets which have greatest accessibility to medium-high and high income customers. Changes in outlet location will therefore occur as new entrants display a preference for upper order business areas and outer suburban markets, and as smaller marginal stores in lower order business areas and inner city markets decline, despite the protection afforded by government trading hours legislation.

The relations of Figs. $\overline{V1}$. 3 and $\overline{V1}$. 4 and the data of Table 6.8 not only suggest what may be the causes, but also what may be the effects of current changes in the locations of the outlets of a convenience goods trade. A change in outlet location from lower order to higher order business areas, and from inner to outer suburban markets will affect outlet price and non-price offers in the ways which are noted in detail in Figs. $\overline{V1}$. 3 and $\overline{V1}$. 4. Of particular interest is the suggestion that, as the suburbanisation of a convenience goods trade increases, and as corner stores and neighbourhood centres decline, the combinations of outlet price and non-price offers which are available to customers will increase in variety, rather than become more standardised. It is a moot point just how far this may be due to a particular sort of legislation which keeps the distinctive service and price offer combinations of at least some small stores in existence, and how far this may be due to other conditions which are general in Western retailing, and which permit the retailer to tailor his price and non-price offers to suit his own scale, location, local market structure and the

socio-economic characteristics of his customers.[103] In Hobart, even in the case of the protected small groceries stores in lowest order business areas and inner city markets, specialisation in convenience, in long hours of personal service and in the supply of staple goods and products with some low quality lines does appear to be well suited to the needs of the generally lower income, low mobility customers which they supply.

This suggests that the distinctive offers of small-scale convenience goods retailers have their place within the metropolitan area. It is not the purpose of this work to suggest precisely how many convenience goods outlets in lower order centres and inner city areas should exist within metropolitan areas. But the findings for Hobart's groceries outlets do have certain implications concerning the general principles which guide planners of public and private organisations in their provision of metropolitan retail facilities. Firstly, they suggest that the use may be unwise of any standard rules of thumb (e. g. shops to population ratios) to determine the provision of convenience goods stores within the metropolitan area.[104] Shops within a trade or business type seem to be greatly differentiated with respect to their scale, and also competitive characteristics, price and non-price offer combinations, and other operating characteristics, and there seems to be a demand for the many different combinations of goods and services which they supply. The findings for Hobart's groceries outlets suggests that any planning of store location should place considerable emphasis on the not unpredictable variations within the City in local market structures and on the varying demands which customers of different socio-economic characteristics will have for different combinations of goods and services.

The findings for Hobart's groceries outlets also suggest that location planning may involve the control not only of the sites of retail enterprise, but also control of the competition between them. For Figs. IV. 3 and IV. 4 show how closely interrelated are outlet location, competitive characteristics and price and non-price offers. It seems that the question of public and private retail location planning may not be able to be considered separately from the questions of competition and efficiency in retailing.[105] For location planning may affect the nature of competition, price levels of stores, the variety of combinations of price and non- price offers available for choice by consumers, and the number and size of 'distribution points' for the supply of particular goods. Conversely, location planning itself may not proceed effectively without taking into account current and future spatial variations in local market structures and the demands by different sorts of customers for different combinations of outlet price and non-price offers. Although it may be pushing the argument too far, the study of Hobart's groceries outlets suggests that it might not be desirable to frame independently legislation which will control retail competition and legislation which will control retail location within the metropolitan area.

1 Over middle-or longer-run periods, but not over the short-run, site selection and thus location itself is used as a competitive strategy by retail firms ( ). In this Chapter, attention is confined to the more conventional means of competition, namely price and non-price offers, which retailers use over all time periods. Attention is paid to location as a middle-run means of competition in Chapter seven.

2 Holdren (1960).

3 Holdren (1960), Chapters 4 and 5 and 9.

4 The price level of the establishment is a rather nebulous concept, somewhat similar in meaning and vagueness to the 'overall level of prices in the economy.' There is considerable evidence that retailers and customers recognise and are influenced by the overall level of prices of a retail establishment (e.g. Duncan and Phillips, 1963 edn., 442-446). Holdren (1960, 67-68) also makes the distinction between establishment price level and establishment price structure.

5 c.f. Duncan and Phillips (1963 edn., 466-468).

6 Opinion is very much divided as to whether advertising, promotions and display are primarily services to the consumer of this sort. They may be primarily services of a completely different sort, namely, means of competition which are used to create customer desires for the advertised product. In the groceries trade, advertising, promotions and display seem to be predominantly used to convey information as to where and for how long cut-price 'specials' will be sold, and to convey information to the customer about new products. For this reason, and for convenience of exposition, in this Chapter advertising, promotions and display are classed as services.

7 The 'level of service' provided in an establishment is as nebulous a concept as the 'price level' of an establishment. But like 'price level,' the level of service seems to be recognised by consumers and retailers, and influences their behaviour (e.g. Duncan and Phillips, 1963, 573-597).

8 c.f. Duncan and Phillips (1963 edn., 497 - 528, 580-583, 598-632).

9 c.f. Duncan and Phillips (1963 edn., 263-290, 344-376).

10 c.f. Duncan and Phillips (1963 edn., 454-455); Holdren (1960).

11 Holdren (1960); Duncan and Phillips (1963 edn).

12 The sample referred to is the first-phase sample of Hobart's groceries outlets for which price, service and range of goods information was recorded, and which were used to determine the price, service and range of goods characteristics of the population of Hobart's groceries outlets in 1964. See Chapter three.

13 Where goods were being offered as a 'special' when price information was being collected for an outlet, the special prices and not the normal prices for the goods were recorded. Because seven or eight goods were offered as 'specials' every week, 'specials' were part of the normal general level of prices in an outlet, and also part of the normal price structure of the outlet.

14 The sample of products is listed in Appendix 6.

15 The 21 selected goods are listed in Table 6.1.

16 The types of customer service which were used to indicate the combination of services offered in an outlet are listed in Statistical Appendix 5 - Table 5.9. (ii).

17 The product groups are listed in Appendix 5.

18 The products are listed in Appendix 5.

19 pp. 186-187.

20 A good was deemed a very close substitute to another if it was similar in quality and quantity of contents and in the design and materials of its pack e.g. Heinz and Kia-Ora 16oz. Tomato soup.

21 Karmel (1963, 290-291) briefly describes the 'weighted aggregate of prices,' and lists other sources where it is described and assessed in some detail. Despite the fact that price indices are regarded as suspect by some of these authorities, they are the only devices available to measure general price levels.

22 R.T.A. prices were the only set of prices available which could be used as an appropriate standard base to place against each set of recorded prices for the groceries outlets in Hobart, in order to indicate the differences between outlet price levels.

23 The lowest gross margins are not found in the Sandy Bay shopping centre, however, but in the C.R.A. The reasons for this are given on

24 Conversation with Hobart's groceries outlet entrepreneurs revealed that goods related to 'specials' are normally (i) goods which are complementary in use (e.g. goods complementary in use to butter are bread, biscuits, many prepared cooking mixes and baking products); (ii) goods which are complementary in purchase, that is, goods bought with the same frequency as a 'special' or less or more frequently but regularly in conjunction with it; (iii) goods which are compensatory, that is goods which are high margin luxury lines upon which the 'savings' on 'specialled' convenience goods lines are spent. Most of the entrepreneurs in upper order business areas had a working knowledge of what were their 'best specials,' and which were each 'special's' related goods for their particular customers.

25 For example, while the largest-scale outlets of the Sandy Bay shopping centre have very much the lowest mean relative price index, they have the lowest mean prices for 10/16 goods, the second lowest for four of the 16, and the third and the fourth lowest for the others. Similarly, while the smallest-scale outlets of class N4 have the second highest mean relative price index, they have the highest mean prices for 6/16 goods, the second highest for 6/16 and the third, fourth or fifth highest for the remainder. Further, the second largest scale outlets of class N1, which have the second lowest mean relative price index, have the second lowest mean prices for only 4/16 goods, the third lowest for 2/16, the fourth lowest for 3/16, the third highest for 2/16 and the second highest for 2/16 (Table 6.1.(ii)).

26 There is some indication, however, that only the very large-scale outlets of business area class J2 (Sandy Bay shopping centre) practice the most frequently discussed form of discrimination, that of lowering prices on already low margin, low price high demand goods, and raising prices and margins on some already higher margin, less high demand goods (Table 6.1.(ii)).

27 For a discussion of price discrimination in retailing, see Holton (1957) and Holdren (1960).

28 The exception is the total number of goods in one sampled product, sugar, standard packs and variaties of which are supplied for sale by the monopolist manufacturer, the Colonial Sugar Refining Co.

29 Andrews (1950, 149) was the first to argue that in retailing, a rationalisation of price-service combinations valued by the customer will be the outcome of inter-store competition with product differentiation. The study of the Hobart groceries trade provides considerable evidence of this.

30 For example, the relations for general stores of location by class of business area and average % goods sold self-service, range of tinned soups and the prices of selected margarine and jam lines (computer output for the separate business types held by the author).

31 c.f. Holdren (1960); Holton (1957); McClelland (1958); Clemens (1950-51).

32 Detailed results for individual business types are contained on the computer output held by the author.

33 In statistical Appendices 4 and 5.

34 pp. 224, 242, 295-296.

35 The adaptation of the degree of emphasis on different means of competition to outlet scale, to the socio-economic characteristics of customers and to local market conditions is referred to in standard texts on retail business administration e.g. Duncan and Phillips (1963 edn., 264-265, 467, 499, 505, 575).

36 c.f. 203, 212-213.

37 The argument in this paragraph follows the argument in Chapter three.

38 Long hours of personal selling, and, in the case of the very low income areas of North Hobart, credit as well.

39 From inspection of field data sheets listing the details of the goods carried in 14 groceries products by sampled outlets in this market.

40 From the field data collection sheets for the outlets surveyed in this market.

41 The greater use of 'specials' in the Moonah market may be a result of larger-scale, lower-price purchasing, of the very strong oligopolistic competition in the market, and the greater responsiveness of low-medium income customers to their use (Table 6.5).

42 The two outer suburban markets of Glenorchy and Bellerive had the highest %'s of takings of all (10.7, 7.9) from 'specials;' the low % (3.5) for the peripheral high income market of Sandy Bay probably reflects the lesser response of high-income customers to the offer of 'specials,' rather than a reduction in the number of different goods which are offered as 'specials' by entrepreneurs.

43 The entrepreneurs of the Glenorchy market, for example, offered the highest or second highest mean prices for a set of 7/16 goods, but also lowest or second lowest mean prices on 2/16, with the remaining mean prices ranking in between. The entrepreneurs of the Sandy Bay market had the highest or second highest prices on a different set of 3/16 goods, but also the lowest or second lowest prices on 5/16 other goods.

44 The sample was also not large enough to determine how far the combination of distinctive price discrimination practices with extensive specialling in outer suburban markets reflected an attempt to maintain some price competition on well-known goods, while covering the costs of specials and extra services in pricing less well-known goods in a non competitive way.

45 Another way in which the entrepreneurs varied their price structures may have been by offering different price-mixes within each product. It is true that there was no marked difference between markets in the number of goods making up the range in each product (Tables 6.2.(i), 6.5). But it is still possible that the types of good carried within each product and thus their prices varied. Inspection of field data sheets for outlets in the Sandy Bay and Glenorchy markets, for instance, showed a proportion of high-quality and imported lines in the range for several groceries products (e.g. biscuits, tinned Herrings). These did not appear in the outlets of other markets. Similarly, inspection of the field data sheets for the Central City market showed a proportion of low-quality brands not found in outer suburban markets.

46 This becomes all the more apparent when it is realised that, although the outlets of the Sandy Bay and Bellerive markets record the highest percentages of goods sold self-service, their entrepreneurs still offer a high level of personal service through their much-used home order and delivery services. In addition, well trained senior labour is employed to assist customers with self-service selection, rather than 'juniors'. In both these markets therefore, the high percentage of goods sold self-service is not an adequate reflection of the level of personal selling; the very high weekly wages bill of the outlets here is a much better one.

47 Table 6.5 and Statistical Appendix 5 - Table 5.12 show that although there is a reduction in the number of product groups stocked between the outlets of outer and inner suburban markets, no one particular set of product groups seems to be deleted.

48 The outlets of the inner suburban markets probably do not specialise in range of goods as a means of competition because their lower income customers cannot afford to pay for other than the cheapest, best-known standard brands, because competition is not sufficiently aggressive to force extension of product ranges in addition to price or service competition, and because the increase in scale of purchases with extension of product range is not likely to be sufficient to give any purchase price and profits advantages to their small-scale outlets (Table 6.5).

49 Computer output of results for separate business types held by the author. See also Table 6.3.

50 Chapters 4, 5.

51 Chapters 4, 5.

52 The price and non-price offers of supermarkets, groceries and general stores. The specialisation of supermarket entrepreneurs in heavily - advertised low price levels and low prices for individual goods, and in a very diverse range of goods, is clearly reflected in Tables 6.1, 6.2, 6.3 and 6.6. The fact that the prices of 5/21 sampled goods are not significantly lower than those for other types of outlet, however, indicates that supermarket entrepreneurs may also practice price discrimination (Table 6.1). The low prices on remaining goods and low price level are clearly a reflection of the purchase price advantages gained by bulk orders direct from manufacturers for these very large-scale outlets. But they may also be a result of the very aggressive oligopolistic competition in which the supermarket entrepreneurs indulge. Heavily - advertised low price levels and prices may also be the result of entrepreneurial attempts to appeal to lower income but reasonably mobile customers, (Table 6.6).

Groceries entrepreneurs, on the other hand, primarily emphasise service competition. But their price levels remain lower than those of general stores, 'specials' are still used to a greater extent, and they offer lower prices on a majority of high and medium demand goods. The medium scale of the grocery and the moderate range of goods still affords a moderate purchase price advantage which is passed on to consumers. The combination of service with estimated price and range of goods competition is probably a reflection of the unwillingness of grocery entrepreneurs to indulge in an active price competition, and an attempt to try to counteract the aggressive low price competition of the supermarkets in another way. In addition, the combination of means of competition offered may reflect an attempt by grocery entrepreneurs to appeal to small, youthful, upper income and reasonably mobile households (Table 6.6).

General Store entrepreneurs are confined to specialising in offering only certain types of service as their major means of competition namely, personal service through counter selling, long opening hours, credit and delivery: they appear to cater in general for the needs of youthful households of large size, but of low per capita incomes and low ~~incomes~~ mobility. General store scale is small, their entrepreneurs do not compete actively, and the demand for goods other than staples is low. General stores thus have the least diversified range of goods, the highest purchase prices, the highest price levels, the least use of 'specials,' and consistently the highest prices on individual goods, despite the elimination of all but a few services (Tables 6.6).

53 pp. 33-41.

54 (1962, 6th edn.,), Chapters 4, 5, 6, and 7.

55 Smith (1962 edn., 1-34, 107-131); Hall (1948, 30-74); Lewis (1945); Hotelling (1929).

56 Simmons (1964); Levy (1949 edn.,); Jeffrys (1950, 1954, 1962); McClelland (1966).

57 e.g. Applebaum and Cohen (1961, 1961-A); Duncan and Phillips (1963 edn.,), Parts 5 and 6.

58 It will be remembered from Chapter 3 that the changes that are to be described are envisaged as occurring firstly, spatially and secondly, temporally (pp.198-9). A pattern of association between location and other variables has been revealed by the data for the 1964 cross-section of Hobart's groceries outlets. This may be

interpreted as a pattern of spatial cause and effect; it may also be interpreted as an analagous pattern of temporal cause and effect - that is, as a pattern of relations between the variables which is stable over a current middle-run period - by making the normal assumptions which lie behind cross-sectional analysis (pp. 198-9). Consequently, the sequence of change described here may first be envisaged as a sequence of spatial change and secondly as a sequence of temporal change.

The changes refer to the general changes which will occur on the average for the group of retail outlets comprising the groceries trade in Hobart, not necessarily to the changes which will occur for any particular outlet (c.f. Chapter I, pp. 32). The description of the changes is therefore a generalisation about conditions in the Hobart groceries trade as a whole, made on the basis of observations for the trade as a whole.

The fact that the description is a generalisation affects the meaning of the words "change in location." Temporal changes in groceries outlet location for the trade as a whole are regarded as changes in the proportion of outlets in the different classes of location, namely, in the different classes and types of business area, and in the different regional markets. These temporal changes in proportions will normally occur if some existing outlets go out of business, and/or some new entrants appear, and/or if some existing outlets change their location to a new locational class. A temporal change in groceries outlet location between locational classes, for example from lower order to higher order business areas, does not mean that each particular groceries outlet currently in lower order business areas migrates to higher order ones, only that an increase occurs in the proportion of outlets in the upper order locations. On the other hand, spatial changes in location for the trade as a whole refer to the changes from all those outlets in the trade which are currently in a particular locational class to those outlets of each other locational class; for example, a change from the outlets in lower order business areas to the outlets of higher order business areas in Hobart in 1964 constitutes a spatial change in groceries outlet location within the group of outlets comprising the Hobart groceries trade.

Similarly, temporal changes in other variables mean the changes in the variables 'on the average' over time for the trade. They will not be effected by each and every outlet making the same adjustment simultaneously in a variable. They may be effected by only some outlets making the sorts of adjustment necessary to produce a change 'on the average' for the trade. Also, spatial changes in other variables mean the general sort of change in the variables between the outlets of different specified locational classes in Hobart in 1964. Spatial increases in scale, for example, are the general increases in outlet scale between lower and higher order business areas and between inner and outer suburban markets.

In cross-sectional analysis, a pattern of spatial change in the variables is assumed to reflect a pattern of temporal change in the same variables which is stable over the current middle-run period. For example, spatial increase in outlet scale between lower and higher order business areas is assumed to reflect a pattern of temporal increase in scale and profits between business area classes which is constant over the middle run. As a result, spatial cause and effect relations - that is, cause and effect relations which hold over space at a given time - are identified as wellas the more usual temporal cause and effect relations. For example, in 1964, spatial changes in outlet scale and profits are said to be the cause of given numbers of groceries outlets being in higher order business

area classes instead of among the outlets of lower order business area classes. That is, spatial changes in scale in Hobart in 1964 are said to be the cause of the spatial differences in outlet location between lower order and higher order business area classes in 1964.

59 Summary of findings pp. 364-370.

60 See pp. 223-226.

61 Simmons (1964).

62 Simmons (1964); McClelland (1966).

63 pp. 259-265.

64 pp. 224-226, 242, 295-296.

65 A high level of service provision and the offer of a wide range of services seems profitable in middle order locations (e.g. class N2), while in lower order locations profits can still be made by offering only the rudimentary services of credit and delivery.

66 Noted in Chapter three, 160 - 163.

67 It will be remembered from Chapter 3 that the changes that are to be described are envisaged as occurring firstly, spatially and secondly temporally (pp. 198-9). A pattern of association between location and other variables has been revealed by the data for a 1964 cross-section of Hobart's groceries outlets. This may be interpreted as a pattern of spatial cause and effect; it may also be interpreted as an analagous pattern of temporal cause and effect - that is, as a pattern of relations between the variables which is stable over a current middle-run period - by making the normal assumptions which lie behind cross-sectional analysis (pp. 198-9). Consequently, the sequence of change described here may first be envisaged as a sequence of spatial change and secondly as a sequence of temporal change.

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The fact that the description is a generalisation affects the meaning of the words "change in location." Temporal changes in groceries outlet location for the trade as a whole are regarded as changes in the proportion of outlets in the different classes of location, namely, in the different classes and types of business area, and in the different regional markets. These temporal changes in proportions will normally occur if some existing outlets go out of business, and/or some new entrants appear, and/or if some existing outlets change their location to a new locational class. A temporal change in groceries outlet location between locational classes, for example from lower order to higher order business areas, does not mean that each particular groceries outlet currently in lower order business areas migrates to higher order ones, only that an increase occurs in the proportion of outlets in the upper order locations. On the other hand, spatial changes in location for the trade as a whole refer to the changes from all those outlets in the trade which are currently in a

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68 c.f. pp. 377-378.

69 Notwithstanding the general trends in service and range of goods which are described in (i) to (v) above, the exact alterations in the combination of outlet price and non-price offers following a change in outlet location from inner to outer suburban markets will depend on the precise market in whose direction the change is made. For a change in the direction of one market rather than another will be the cause of a change towards one distinctive combination of outlet price and non-price offers rather than another, within the general trend towards more service, range of goods and not substantially higher price levels in outer suburban markets. For example, a change in the direction of a high income, highly competitive market where outlets are on average of large scale (Sandy Bay) will result in a high level of service provision with the accent on personal service, delivery, advertising and carpark facilities. Radical increases will occur in the total number of goods carried in major product groups, and increases will also occur in the number of goods in products where high quality imported exotic lines may be stocked. Price levels will not, however, be much higher than those of the outlets in other outer suburban markets.

70 In the shopping goods trades, these changes are accompanied by declines and not rises in the outlet range of goods. But little is known about the convenience goods trades such as the groceries trade. It is quite possible that their ranges of goods are expanded.

71 Anon. (1967).

72 pp. 259 - 265 also; p323 ff, especially p. 334.

73 c.f. pp. 160 - 163.

74 c.f. pp. 200 ff.

75 pp. 371 - 380.

76 pp. 253 ff., 322 ff.

77 The limiting of institutional restrictions to these two types was firstly due to the removal of wartime price controls by the mid fifties and secondly due to the fact that manufacturers did not attempt to restrict retail groceries operations in any way. In 1964, there was no evidence of discriminatory dealing or refusals to deal by groceries manufacturers, even though the Retail Traders Association complained to the Royal Commissioner on Restrictive Trades Practices in Tasmania that exclusive dealing arrangements were made between manufacturers and groceries outlets with very large buying power (The Commission, 1965, 20). In 1964, too, manufacturers made no attempt to enforce their own suggested retail prices on the major groceries lines; manufacturers' prices were enforced mainly in the case of a few products outside the groceries group e.g. paint, cigarettes and tobacco, toiletries.

78 Interviewed 10.2.65.

79 The lesser influence of the R.T.A. over larger than smaller firms existed despite the fact that the Master Grocers' Association was founded in 1938, and the R.T.A. in 1939, and that both had a long established reputation of united action in the interests of the great majority of groceries retailers. Both organisations have counterparts in other states, and are affiliated with two national bodies, N.A.R.G.A. and the National Council of Retailers.

80 Mr. Pash, 10.2.65.

81 Retail Traders Association of Tasmania, Constitution, 8.

82 Report of the Royal Commissioner on Prices and Restrictive Trades Practices in Tasmania, 1965, 54: "offering cut prices or special discounts for commodities on condition that customers purchase other goods of a specified value; ... advertisements stating or implying that the seller has a specified quantity of the goods to be offered at a special price where infact only a few are sold at that price and the customer is informed that they have all been sold."

83 Mr. Pash, 10.2.65.

84 Although a question was not officially included in the entrepreneur questionaire about this, it was clear in discussion that many Hobart groceries outlet entrepreneurs felt this way.

85 It is beside the point here to determine whether or not many of the members of the R.T.A., through their adherence to a certain code of ethics and R.T.A. recommended prices, were parties to undesirable restrictive trade practice agreements, that is "to any trade arrangements or agreement between firms which, although designed to promote legitimate business interests, has the effect of reducing competition (against the public interest) between the parties to the arrangement." (The Report of the Royal Commissioner, 1965, 31).

In fairness to the R.T.A. however, it should at least be noted that the Royal Commissioner adjudged the Association free from any undesirable restrictive trades practices (The Report, 1965, 8).

86 Shops in peripheral markets lay outside the restricted trading zones of the cities of Hobart and Glenorchy, or inside 'rural' areas within the metropolitan area boundary, but more than the regulation 7 miles from the Hobart G.P.O., in which case they were exempted from trading hours restrictions.

87 Although the regulations required all other goods in the store to be partitioned off from customers during the hours in which exempted goods or newspapers could be sold, it was clear from the entrepreneur interviews in Hobart, that, once they gained the right to open their stores at all for exempted goods trading, the majority of entrepreneurs sold anything the customer demanded as well.

88 For obvious reasons, entrepreneurs selling exempted goods were unwilling to have their answers officially recorded to questions concerning their expansion into exempted goods lines. So no precise figures may be included of the number of entrepreneurs who traded exempt goods in order to gain unrestricted opening hours which could be also illegally used for the sale of other commodities as well.

89 Fulop (1964); Levy (1948); Jeffreys (1954).

90 Jeffrys (1954).

91 Although these sorts of change in price and non-price offers have been observed in many studies of the groceries trade, to this author's knowledge their possible connection with the decline in the influence of the local traders' organisations has never been investigated (See for example, Mueller and Garoian, 1961; Holdren, (1960).

92 The disappearance of small convenience goods stores in lower order business areas and the 'suburbanisation' of many retail trades are phenomena which have been widely observed. They have been associated too with the advent of large-scale retailing, and with the changes in the organisation of distribution in Western societies with the elimination of the traditional wholesaler. However, the possible importance of the declining influence of traders organisations on these locational changes does not appear to have been considered (see for example, Simmons, 1964).

93 The impact of Trading Hours legislation on the relations of outlet scale, outlet location, and the means of competition is reserved for analysis in the next section.

94 see Hotelling (1929); Chamberlin (1962 edn., 56-176); Berry (1967, 74-88). The relations between retail outlet location and non-price offers are virtually unexplored.

95 pp. 369, 379-380.

96 Clemens (1950-1951); Holton (1957); Holdren (1960).

97 Berry and Pred (1965, 7); Berry (1967, 85-86).

98 pp. 24-26; 308-309, 380-381.

99 Berry states in Geography of Market Centres and Retail Distribution (1967, 123-124) that central place theory may break down in metropolitan areas because of this.

100 Although Chamberlin (1963 edn.,), Holdren (1960) and Isard (1958) come close to developing price theory along these lines.

101 See footnote 103, Chapter 4.

102 The sorts of exemptions from Trading Hours legislation which appeared in Hobart have their parallel in the British Shops Act (1950) for example (See Fulop, 1964, f.n. 229).

103 Such other conditions might include firstly, the retailer's greater freedom to deal direct, to select his range of goods and to arrange his own purchase prices and advertising and promotion; secondly, the existence of an increasingly wide range of product groups, products and assortments of goods within products from which he can make his own selection; and thirdly, the decline in local Trader's organisation controls over the types of pricing and services which he can adopt.

104 e.g. McClelland (1966, 220-229); Brown and Sherrard (1959, 275-276); Fordand Thomas (1953, 7-18); Cullingsworth (1963, 231); Adelaide Town Planning Committee (1962, 167-170); Lock (n.d., 393); Abercrombie (1944, 119).

105 Ford and Thomas (1953) were among the first economists to suggest this. McClelland (1966, 290) has also recently arrived at this conclusion.

CHAPTER 7 HOBART'S GROCERIES OUTLETS : LOCATION AND DEMAND

SYNOPSIS

MAIN CHAPTER HEADINGS

	Introduction Definitions and Measures: Customer Characteristics and Customer Trip Characteristics.
DESCRIPTION OF THE GROSS RELATIONS OF DEMAND AND LOCATION BY CLASS AND TYPE OF BUSINESS AREA	Location by Class of Business Area and Demand; Implications for the Relations between Demand and Outlet Location by Type of Business Area; Implications for Customer Demand for the Goods and Services of Different Business Types.
INTERPRETATION OF THE GROSS RELATIONS OF LOCATION AND DEMAND	The Interrelation of Outlet Location and Customer Demand
PRIMARY AND SECONDARY RELATIONS-DEMAND AND LOCATION	Effects of the Attributes of Outlet Location by Class of Business Area on the Socio-Economic Characteristics and Travel Behaviour of Customers. Other Influences on the Demand for Outlet Goods and Services in Different Classes of Business Area: The Interaction of Demand and Location. Comparison of the Suggested Linkages with Data for Hobart's Groceries Outlets.
CONCLUSIONS	Implications for Future Theoretical Studies of Retail Location. Implications for Future Empirical Studies of Retail Location.

Introduction

The attempt to account for the locational structure of groceries retailing in Hobart is concluded in this chapter. After having examined the hypothesized interrelations of outlet location with outlet scale, outlet competitive characteristics, outlet costs and efficiency, and outlet price and non-price offers respectively, tests are finally made of the hypothesized relations between the locations of the outlets of a retail trade and the demand by customers for their 'product'.[1] At the centre of interest are two ways in which the locations of retail outlets are influenced by the differences in customer demand for their goods and services which arise, firstly, from the differences in shopping travel behaviour of their customers, (outlet customer trip characteristics), and secondly, from the differences in the socio-economic characteristics of the households to which their customers belong (outlet customer characteristics). At the centre of interest too are the ways in which outlet location itself may be varied over the middle-run, for example, from lower to higher order business areas, and may be used by entrepreneurs in conjunction with other means of competition to influence customer demand for their product. Special attention is paid to entreprenurial variations of location over the middle-run, in conjunction with short- and middle-run variation of outlet price and non-price offers, to produce variations in the frequency distributions of the distances travelled by their customers from their place of origin. These variations in turn cause variations in the market areas of outlets, in the short-run locations of outlets relative to the locations of their customers,[2] and in customer demand for outlet goods and services.

By focussing attention on these several topics in the context of testing hypothesized interrelations of outlet location and customer demand, an attempt is made to integrate and examine the different ideas about the relations of customer demand and location which are found in at least three fields. From economic theory is derived the emphasis in this chapter on the effects of the socio-economic characteristics of customers on aggregate customer demand for the goods and services of a retail outlet. In economic theory, the relations of customer demand and outlet location are embraced by considering outlet location as one of the services incorporated in the differentiated 'product' which a retailer offers. The traditional firm demand function is then employed to show the quantities of the outlet's goods and location and other services which are demanded by customers at different outlet price levels. It is implied in the use of demand functions in economic theory that differing socio-economic characteristics of customers, especially their incomes, will have most impact on outlet demand functions. Changes in the socio-economic characteristics of customers will be the most important cause of changes in the demand functions for retail outlets' locationally differentiated products. The influence of customer travel behaviour on the individual outlet demand function is rarely explicitly or implicitly taken into account.[3]

On the other hand, location theory and especially central place theory contain an analysis of the ways in which customers travel for the purchase of retail goods, and of the impact of their travel behaviour on the demand functions, market areas and short- and middle-run locations of outlets in spatial competition.[4] The various pertinent works in location theory thus contribute to the emphasis in this chapter on the influence of customer travel behaviour on the demand for outlet goods and services; on the ways in which middle-run changes in location by site changes can be used by entrepreneurs as a means of competition; and, especially, on the ways in which

middle-run variations in location affect changes in market area sizes, short-run location, and customer demand. However, in all versions of central place theory, simplifying assumptions are made about customer travel and about the socio-economic characteristics of customers. These simplifying assumptions greatly restrict the sorts of relation which the theory can predict between retail location , customer characteristics, customer trip characteristics, market areas and demand. The assumptions of the versions of location theory which are applicable to the study of retail location include a majority of the following :

(i) that all customers within a market (for example, a metropolitan groceries market) are homogeneous in their travel behaviour, income and tastes and preferences;

(ii) that customers are distributed prior to their shopping trip at given points in space, their places of residence, that they shop for one good at a time from these places of origin; each leaving from and returning to the same place of origin each time;

(iii) that customers act to minimise their travel costs, or the delivered price of a good, in the choice of an outlet at which to make their purchase;

(iv) that customers are not significantly influenced by variations in the price and non-price offers of different outlets in their choice of a place at which to shop;

(v) that the locations of the outlets of a given trade or business type in different classes of business are not significantly influenced by the differences in outlet demand functions which arise from differences in the socio-economic characteristics of their customers, differences in customer travel habits, and differences in outlet price and non-price offers; in central place theory this assumption is embodied in the notion of a homogeneous "range" and "threshold" for the outlets supplying a given sort of tertiary good or service.

Not from location theory therefore, but from another field, marketing geography, is derived the emphasis in the chapter on the possible effects on the demand for outlet goods and services of differences in the socio-economic characteristics of customers, differences in their travel behaviour, and differences in customer response to different outlet price and non-price offers.[5] Work in marketing geography suggests that, for the outlets of a given trade, these differences will lead to complex but not unpredictable variations in the demand for the 'products' of outlets in different locations. Work in marketing goegraphy also suggests that the use of middle-run variations in location (new site selection) as a competitive strategy in conjunction with other means of competition will involve, firstly, the assessment of the differing socio-economic characteristics of customers and of their differing travel habits, and secondly, the impact of the different customer and customer trip characteristics on market areas, short-run location and demand.

In addition, studies of customer travel behaviour[6] and marketing theory[7] emphasise that marked variations in the socio-economic characteristics of customers, and in outlet price and non-price offers have a particularly important influence on outlet

market areas, locations, and customer demand. Still more important perhaps is the influence of those differences in customer travel patterns which are shown in the different spatial distributions of customers by the places of origin of their shopping trips in point concentrations, linear flows, and areal spreads; in the different types of places of origin or destination of customer trips, workplace, school, journey to work, residence; in the different combinations of purposes and destinations on a single shopping trip; and in the different designs of trips to maximise net returns rather than to minimise costs.

In order to synthesize and to examine the diverse ideas of all these fields, the testing of the hypothesized interrelations of outlet location and demand is carried out in the following way. First, an examination is made of the overall relation of the locations of Hobart's groceries outlets classified by class of business area with customer demand for their goods and services.[8] The demand for an outlet's product is indicated firstly by selected socio-economic characteristics of the households it supplies (household income, size and age structure), and secondly, by the frequency distribution of its customer trips by distance from their place of origin, which defines the outlet's market area. The examination of the overall relation of location and demand includes a general interpretation of the ways in which variations in groceries outlet location by class of business area may be influenced by variations in the socio-economic characteristics of customers and in their travel habits. It also includes a general interpretation of the ways in which variations in groceries outlet location between different classes of business area may be used in competition to effect variations in demand by leading to alterations in the customer and customer trip characteristics of outlets, and to alterations in outlet market areas.

Following the examination of the overall relation of groceries outlet location and demand, a more detailed analysis is made of the impact of other variables which influence the form of the overall relation; that is, an analysis is made of the important primary and secondary linkages of outlet location and demand. Especially, a detailed analysis is made of important variables which affect the frequency distributions of the distances travelled by customers to outlets in different classes of business area, and which thus affect outlet market areas and demand. These important variables are: other customer trip characteristics (for example, the place of origin of customer trips and customer modes of travel), outlet price and non-price offers, outlet competitive characteristics, and the socio-economic characteristics of outlet customers. The analysis of the ways in which all these variables together influence the spatial variation of outlet market areas helps reveal in detail how outlet location by class of business area can be used as one of many means of competition by the entrepreneurs of the outlets of a given trade over the middle-run. Entrepreneurs are able to effect advantageous alterations in the demand for their product by being able to alter the variables controlling the travel behaviour of their customers through changes in location between different classes of business area.

Finally, following both the detailed study and the general study of the overall relations of groceries outlet location and demand, conclusions are drawn concerning the wider theoretical and empirical implications of the analysis.

TABLE 7.1

TABLE 7.1

DEFINITION AND CLASSIFICATION OF CUSTOMER TRIPS TO A RETAIL GROCERIES OUTLET, BASED ON INTERVIEWS OF 4237 CUSTOMERS AT 40 OF HOBART'S GROCERIES OUTLETS, 1964 a

CUSTOMER TRIP TO A RETAIL GROCERIES OUTLET: A movement of an individual by any means of locomotion between departure from a base and arrival at the same or another of her (his) bases which is interrupted by a stop at the retail groceries outlet for the purpose of making a cash or credit purchase there.

BASES OF A CUSTOMER TRIP TO A RETAIL GROCERIES OUTLET: A base of operations of a customer is a particular place where she (he) customarily and regularly performs the activities at which she (he) spends the greater amount of time. A base forms the place of origin (O) and the place of destination (D) of a customer trip to a retail groceries outlet. The following are the most common bases of customer trips to a retail groceries outlet, HOME (H), PLACE OF WORK (W), SCHOOL (S), PLACE OF SOCIAL OR RECREATIONAL ACTIVITY (R). A shopping centre elsewhere (C) is a less common base of customer trips to a retail groceries outlet.

A ROUND TRIP: A customer trip to a retail groceries outlet which has the same base at the place or origin and the place of destination. A round trip is therefore a H-H, W-W, S-S, R-R, or a C-C trip.

A DUAL BASE TRIP: A customer trip to a retail groceries outlet which has a different base at the place of destination than at the place of origin. The most common types of dual base trips are Home-Work (H-W), Work-Home (W-H) trips.

LOCATIONS OF TRIP BASES: All the most common sorts of bases of a customer trip, namely, home, place of work, school, place of social or recreational activity, normally lie outside the business area which contains the retail groceries outlet to which the trip is made. But in the case of an outlet in some of the larger business areas, e.g., the C.R.A., the most common sorts of customer trip bases may lie either inside or outside the business area which contains the outlet.

MULTIPLE PURPOSE TRIP: A customer trip to a retail groceries outlet in a business area (shopping centre), which is interrupted by one or more stops in the business area in addition to that at the groceries outlet, for purposes other than shopping, (making cash or credit purchases at retail establishments) or transferring from one mode of transport to another. A multiple purpose trip may be also either a single shopping purpose or a multiple shopping purpose trip.

(Cont.)

TABLE 7.1 (Cont.)

DEFINITION AND CLASSIFICATION OF CUSTOMER TRIPS TO A RETAIL GROCERIES OUTLET, BASED ON INTERVIEWS OF 4237 CUSTOMERS AT 40 OF HOBART'S GROCERIES OUTLETS, 1964 a

SINGLE SHOPPING PURPOSE TRIP: A multiple purpose trip which is interrupted by a stop at a groceries outlet as the only retail establishment visited.

MULTIPLE SHOPPING PURPOSE TRIP: A customer trip to a retail groceries outlet in a business area, which is interrupted by one or more stops in the business area in addition to the stop at the groceries outlet with a view to making cash or credit transactions in one or more other retail establishments. If stops are made at several retail establishments selling the same type of shopping goods, besides the stop at the retail groceries outlet, then the trip is a multiple shopping purpose - comparison shopping trip. Shopping goods are goods for which individuals characteristically wish to compare style, quality and price before purchasing.

SINGLE PURPOSE TRIP: A customer trip from one base to another which is interrupted by a stop at the retail groceries outlet only.

CUSTOMER TRIP LEGS: The parts or sections into which a customer trip is divided by the stops made between the base at the place of origin and the base of the place of destination. The stops form the intermediate destinations of a customer trip to a retail groceries outlet. The stop at the retail groceries outlet itself is an intermediate destination.

CUSTOMER TRIP LINKAGES OF A RETAIL GROCERIES OUTLET: The combination of the types of establishment which are visited by customers in the course of their movement on trips to the retail groceries outlet. They comprise the types of establishment at the bases of origin, at the bases of destination, and at the intermediate destinations of customer trips.

a The other most important source which was used to make the classification was Mitchell and Rapkin (1952, Glossary, 215 - 219).

Definitions and Measures : Customer Characteristics and Customer Trip Characteristics

The two sorts of indicator which were used to determine the demand by customers for the 'product' of an outlet were firstly, certain socio-economic characteristics of the outlet's customers, and the frequency distribution of the outlet's customer trips by distance from their place of origin. The frequency distribution of the distances from place of origin of all customer trips made to an outlet over a given time period defines an outlet's maximum and average market area size and penetration.[9] The frequency distribution also reflects the total number of transactions over the time period which members of households can be induced to travel to make at the outlet in preference to going to outlets elsewhere. The socio-economic characteristics of the household to which each customer belongs affects the aggregate expenditures by customers from each individual household on trips to the outlet over the given time period, and thus the amount spent by each customer (household member) on each and every transaction at the outlet. Households with higher per capita incomes, or more members, or more juvenile dependents will probably have higher aggregate expenditures by their members per unit time period than households with lower per capita incomes, or fewer members, or fewer juvenile dependents.[10] The individual transactions per unit time period at a groceries outlet by the customers travelling for each type of household will reflect the differences in aggregate expenditures of a household of each type per unit time period. Accordingly, over a given time period, the total money expenditure by customers at a given outlet - which is the customary measure of customer demand for an outlet's goods and services[11] - can be expressed as a function of firstly, the total number of transactions which customers may be induced to make at any outlet rather than at those nearby or elsewhere, and secondly, the sizes of the transactions indicated by the income, size and age structure of the households to which customers belong.

For the study of Hobart's groceries outlets, data were used to make estimates of the following measures of the socio-economic characteristics and the trip-distance frequency distributions of the customers of each sampled outlet;[12]

Customer Characteristics

(i) household income : average annual income per person per customer household;

(ii) household size : average number of persons per customer household;

(iii) household age structure : average number of juvenile dependents (person less than the school leaving age of 16-17 years) per household.

Customer Trip Characteristics : Frequency Distributions by Distance Travelled

(i) number and proportion of customer trips on an average weekday by 12 classes of straight line distance of the outlet from the places of origin of the customers' shopping trips;

(ii) number and proportion of trips on an average weekday by six classes of customers' estimated time spent in travelling to the outlet from the places of origin of their shopping trips.

The estimates of the measures for each outlet were made using the data obtained from a sample of customers who were interviewed on a Wednesday or a Friday, and who provided information about their trip that day.[13] The major deficiencies of the estimates were:[14]

(i) limitations which arose because of the very small non-random samples of customers who were interviewed;

(ii) limitations which arose because of the difficulties of eliciting accurate information from customers concerning their shopping trips, especially concerning their places of origin and destination and travel times;

(iii) limitations which arose because of the unexpected complexity of the shopping trips of customers and the difficulty of defining them; a classification of the variety of trips which were included as shopping trips to a groceries outlet is given in Table 7.1;

(iv) limitations which arose because of the difficulty of measuring customer trip-distances from their place of origin; only straight-line physical distance and estimated time-distance could be used, despite the fact that measures of customers' subjectively perceived distance and perceived travel costs, and of actual route distances and actual travel times would have been better.

All these limitations also arose in the case of the measures of a further set of customer and customer trip characteristics. These customer and customer trip characteristics were used to assist in the detailed study of the causes of the spatial variations in groceries outlet customer trip-distance frequency distributions, that is, in groceries outlet maximum and average market area size and market area penetration. The additional customer and customer trip characteristics of each sampled outlet were :

Outlet Customer Characteristics

(i) average number of persons employed full-time per customer household;

(ii) average persons per auto per customer household;

Outlet Customer Trip Characteristics

(i) the number and proportion of customers on an average weekday who were male;

(ii) the number and proportion of customers on an average weekday who fell in each of five categories of weekly frequency of visit to an outlet;

(iii) the number and proportion of customers on an average weekday who fell in each of seven categories of trip origin and destination combinations;

(iv) the number and proportion of customers on an average weekday who fell into four categories of modes of travel;

(v) the number and proportion of customers who were on other than home-shop-home trips on an average weekday, and who also fell into four categories of straight-line distance of the outlet from their place of residence;

(vi) the number and proportion of customers on multiple purpose trips on an average weekday (trips which included a visit to the groceries outlet and visits to other establishments for purposes other than shopping and/or for other shopping purposes);

(vii) the number and proportion of customers on an average weekday who were on multiple purpose trips and who fell into each of seven categories of multiple purpose trips.

The additional customer and customer trip characteristics describe the factors which theoretical and empirical studies suggest influence the distances travelled by customers : customer mobility, that is, the time and the means available for shopping trips (average number of persons employed full-time per customer household, average persons per auto per customer household, the number and proportion of customers who were male, the number and proportion of customers using different travel modes); the desired frequency of visit (number and proportion of customers in five weekly frequency or visit categories); and other factors which affect the assessed costs and advantages of shopping at outlets in different locations (the number and proportion of customers by types of trip origin and destination combination, the distance an outlet lies from the customer's place of residence where the outlet is visited on other than a home-home shopping trip, the customer's ability to visit many retail establishments and/or to use other sorts of tertiary facilities on a shopping trip to a groceries outlet).

TABLES 7.2 - 7.3

TABLE 7.2

SUMMARY OF THE RESULTS OF THE ANALYSIS OF VARIANCE AND χ^2 TESTS OF THE ASSOCIATION OF OUTLET CUSTOMER AND CUSTOMER TRIP CHARACTERISTICS WITH (1) OUTLET LOCATION, AND (2) TYPE OF OUTLET AND OUTLET LOCATION a

OUTLET CUSTOMER/ CUSTOMER TRIP CHARACTERISTIC	(ALL) GROCERIES OUTLETS BY BUSINESS TYPE (SM,GRO,GEN)	LOCATION IN B.A. TYPE (N, J)	LOCATION IN B.A. CLASS (N1-N4, J1-J4)	SUPERMARKETS BY LOCATION IN B.A.TYPE (N, J)	SUPERMARKETS BY LOCATION IN B.A. CLASS (N1-N4,J1-J4)	GROCERIES BY LOCATION IN B.A.TYPE (N, J)	GROCERIES BY LOCATION IN B.A. CLASS (N1-N4,J1-J4)	GENERAL STORES BY LOCATION IN B.A.TYPE (N,J)	GENERAL STORES BY LOCATION IN B.A. CLASS (N1-N4,J1-J4)
CUSTOMER CHARACTERISTICS									
1. Av. income per person per customer household	x	/	/	o	(/)	(/)	/	(/)	/
2. Av. number of persons per customer household	/	-	/	x	o	-	/	-	/
3. Av. number of juvenile dependents per customer h'h	-	/	/	(/)	(x)	-	-	(/)	(/)
CUSTOMER TRIP CHARACTERISTICS									
1. Number of customer trips (per week day) by 12 classes of straight line distance of outlet from trip origin	/	-	/						
2. Number of customer trips (per week day) by 6 classes of time distance of outlet from trip origin	/	-	/						

/ For χ^2 significant at 1% level) strong
x χ^2,F significant at 5% level) relation
o χ^2,F significant at 10% level
- χ^2,F not significant at 10% level
(/) Form of relation for outlets of this type of business separately is the same as for all outlets together.

a Because of the small size of the sample of outlets for which customer trip information was collected, an analysis of the customer trip data was carried out only for all groceries outlets together, and not for each separate type of outlet.

Sources: Statistical Appendix 6 - Tables 6.1 to 6.3; Statistical Appendix 7 - Tables 7.1, 7.2; computer output with results for individual business types held by the author.

TABLE 7.3

CUSTOMER AND CUSTOMER TRIP CHARACTERISTICS OF OUTLETS IN BUSINESS AREA CLASSES

OUTLETS IN B.A. CLASS	Mean Av. Wkly Tkgs ($A) SCALE	Mean Av. Income/ prsn/ h'h ($A) CUSTOMER CHARACTERISTICS	Mean Av. No. Persons/ h'h	Mean Av. No Jvnle Dpdnt/ h'hold	Mean No. Pn. Customers < ½ mile from trip origin Physical Distance from Origin (miles) CUSTOMER TRIP CHARS: FREQUENCY DISTRIBUTNS OF CUSTOMER TRIPS BY DISTANCE FROM ORIGIN		Mean No. Pn. Customers ½ to 1 mile from trip origin		Mean No. Pn. Customers >1 mile from trip origin		Mean No. Pn. Customers < 3 mins. from trip origin Time Distance from Origin (minutes)		Mean No. Pn. Customers 3-5 mins. from trip origin		Mean No. Pn. Customers 6-10 mins from trip origin		Mean No. Pn. Customers > 10 mins from trip origin		Mean Total No. Customers from all distance classes/weekday
N1	2733	845M	3.88M	1.38H	272	.40	179	.27	208	.32	71	.11	246	.37	203	.30	145	.22	670
N2	1200	995H	3.78M	1.22M	132	.61	21	.10	45	19	60	.28	89	.41	42	.19	25	.12	217
N3	880	843L	3.98H	1.56H	158	.66	23	.10	53	.21	64	.27	84	.36	52	.22	31	.14	237
N4	679	898M	3.72L	1.24M	61	.74[b]	4	.05	13	.16	38	.47	21	.27	10	.13	10	.14	89
J1	1763	852M	3.69L	.95M	177	.41	42	.10	162	.40	86	.20	65	.15	85	.20	177	.41	425
J2	2100	1125H	3.08L	.78L	455	.35	318	.24	435	.40	94	.07	555	.42	385	.29	275	.22	1314
J3	842	773L	3.86M	1.19M	72	.70	12	.12	15	.14	29	.25	39	.38	17	.17	16	.15	103
J4	640	778L	3.93H	.87L	162	.85[b]	5	.03	18	.09	118	.61	47	.24	8	.04	19	.11	192

H High (business area class mean ranks 1 or 2) M Medium (business area class mean ranks 3, 4, 5)

L Low (business area class mean ranks 6, 7, 8)

a Total includes customers whose distance from origin was not specified.

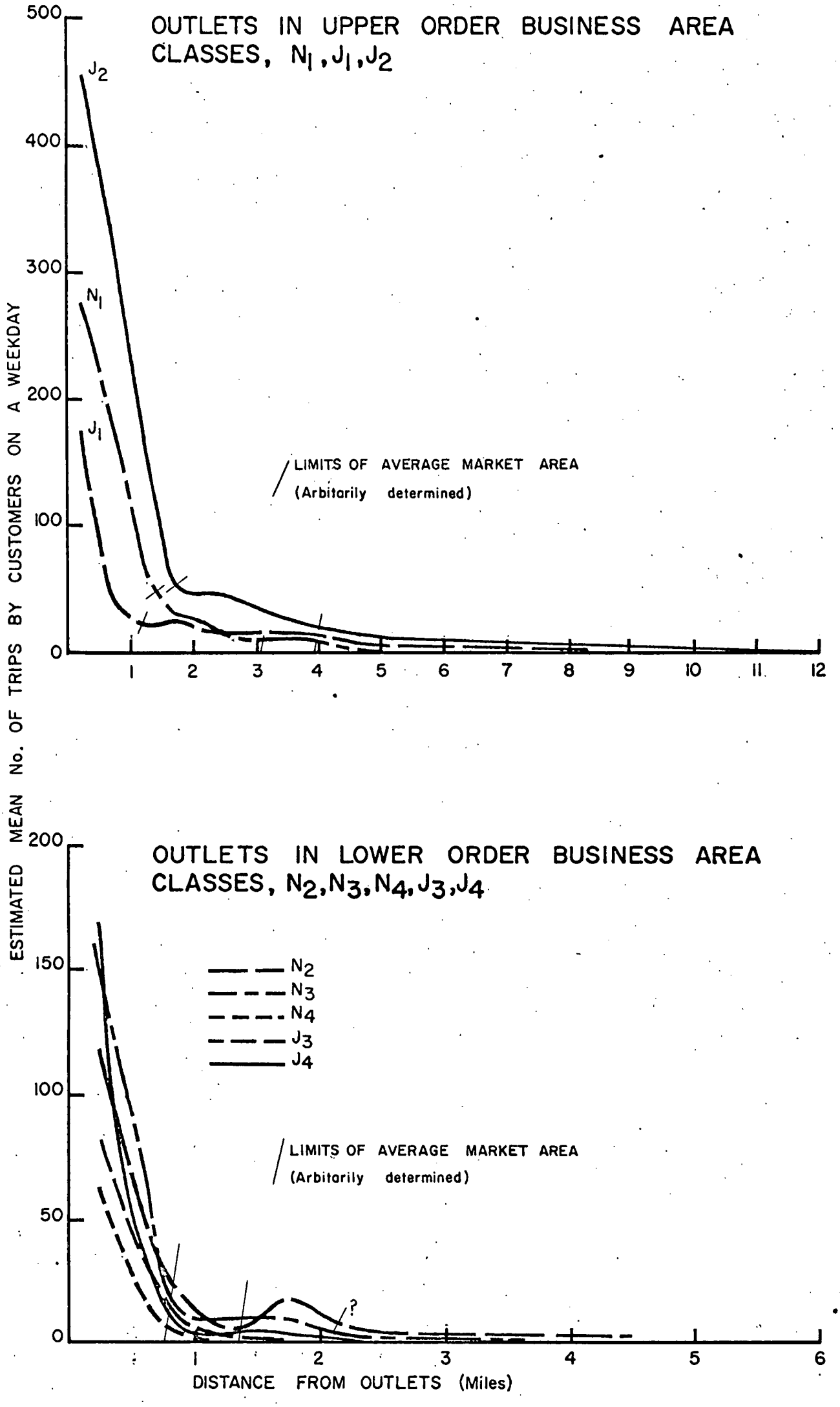
b Over 50% of customers were within 1/8 mile of their place of origin.

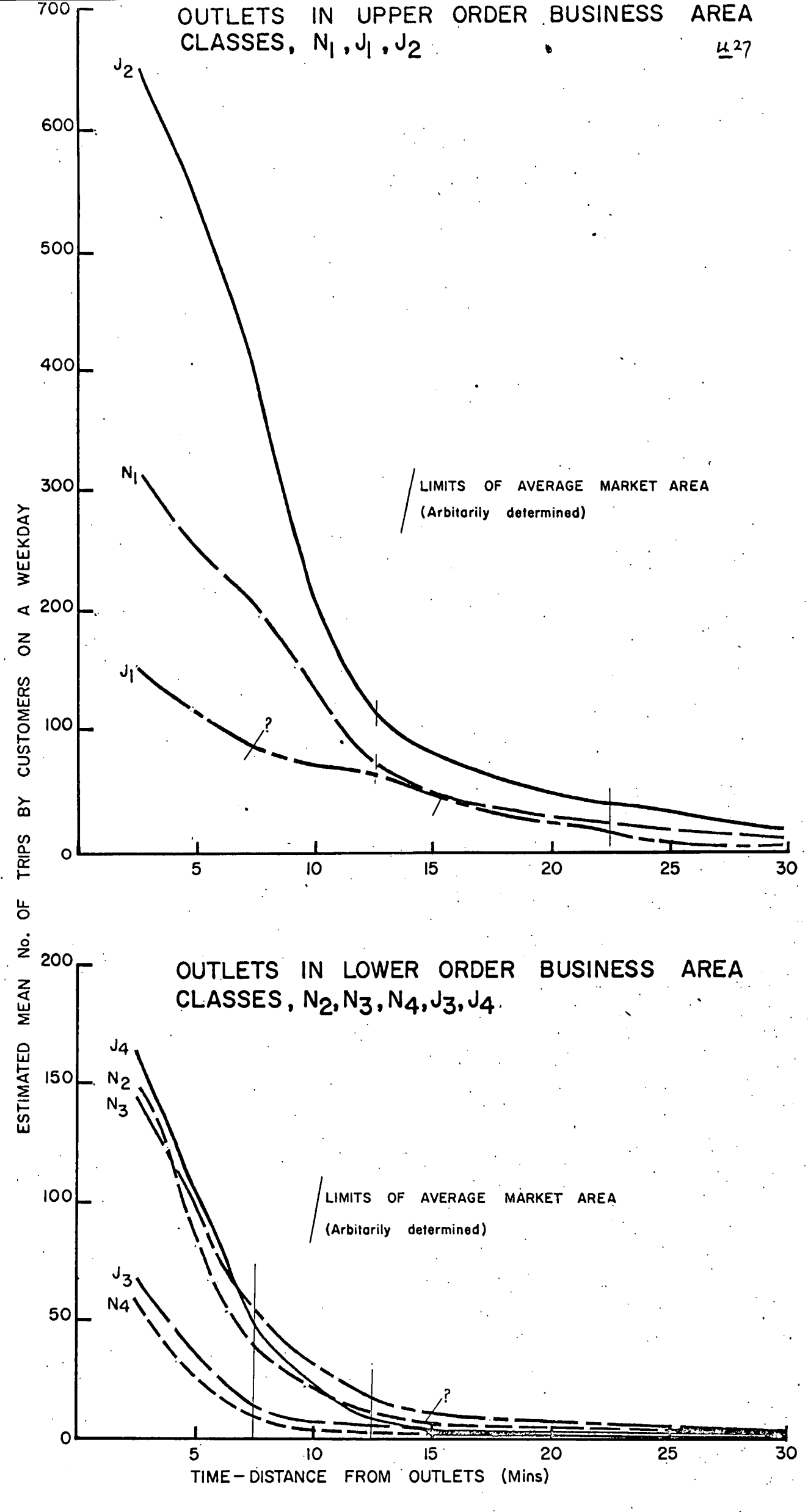
Sources: Statistical Appendix 4 - Table 4.1; Statistical Appendix 6 - Tables 6.1 to 6.3; Statistical Appendix 7 - Tables 7.1 and 7.2.

FIG. VII.1

FIG. VII. 1 FREQUENCY DISTRIBUTIONS OF CUSTOMER TRIPS TO GROCERIES OUTLETS IN UPPER AND LOWER ORDER BUSINESS AREAS, BY DISTANCE IN MILES AND BY TIME DISTANCES FROM PLACE OF ORIGIN, HOBART, 1964.

Source: Statistical Appendix 7 - TABLES 7.1, 7.2.


OUTLETS IN UPPER ORDER BUSINESS AREA CLASSES, N1, J1, J2
J2
N1
J1
LIMITS OF AVERAGE MARKET AREA
(Arbitarily determined)
OUTLETS IN LOWER ORDER BUSINESS AREA CLASSES, N2, N3, N4, J3, J4
N2
N3
N4
J3
J4
LIMITS OF AVERAGE MARKET AREA
(Arbitarily determined)
ESTIMATED MEAN No. OF TRIPS BY CUSTOMERS ON A WEEKDAY
DISTANCE FROM OUTLETS (Miles)


OUTLETS IN UPPER ORDER BUSINESS AREA CLASSES, N1, J1, J2
J2
N1
J1
LIMITS OF AVERAGE MARKET AREA
(Arbitarily determined)
?
OUTLETS IN LOWER ORDER BUSINESS AREA CLASSES, N2, N3, N4, J3, J4.
J4
N2
N3
J3
N4
LIMITS OF AVERAGE MARKET AREA
(Arbitarily determined)
?
ESTIMATED MEAN No. OF TRIPS BY CUSTOMERS ON A WEEKDAY
0
50
100
150
200
300
400
500
600
700
5
10
15
20
25
30
TIME – DISTANCE FROM OUTLETS (Mins)

DESCRIPTION OF THE GROSS RELATIONS OF DEMAND AND LOCATION BY CLASS AND TYPE OF BUSINESS AREA

A statistical analysis was first made of the gross relations of groceries outlet location by class of business area and the five indicators of the demand for an outlet's goods and services, namely, customer household income, customer household size, customer household age structure, and the frequency distributions of customer trips by time and physical distance from place of origin. Statistical Appendix 6 - Tables 6.1 to 6.3 and Statistical Appendix 7 - Tables 7.1 and 7.2 contain the results of the statistical analysis of the data for these measures of demand for Hobart's groceries outlets; a summary of the results is contained opposite in Tables 7.2 and 7.3, and in Fig. VII.1.

Tables 7.2 and 7.3 show that particularly strong, predictable relations exist between the measures of customer demand for Hobart's groceries outlets and their location by class of business area. The existence of these relations gives support to the first and main hypothesis of this work : "that the locations of the establishments of a retail trade become significantly interrelated in predictable ways with many other of their own characteristics (including the nature of their customers' demand for the goods and services they provide)".

Location by Class of Business Area and Demand

Differences in the Socio-Economic Characteristics and in the Market Areas of the Outlets of Upper and Lower Order Business Areas

The aggregate customer demand for a groceries outlet's goods and services in Hobart increases as outlet location changes from lower order (N2 to N4; J3, J4) to higher order (N1, J1, J2) business areas. But this does not occur simply as a result of consistent increases in the incomes, size and number of juvenile dependents of the households of the customers who are attracted to an outlet. Nor does it occur as a result of consistent increases in mean market area size, in maximum market area size, and in market area penetration. Rather, the groceries outlets of upper and lower order business areas appear to have distinctive combinations of higher and lower customer household incomes, larger or smaller family sizes, and older or more youthful age structures, and of larger or smaller maximum and average market area sizes and greater or less market area penetration. It is the combinations present in the case of the outlets of upper and lower order centres which produce an increase in demand from lower to higher order business areas.

The customer households served by outlets in upper order business areas are only medium or small in size, and may have a high, medium or low number of juvenile dependents (Table 7.3). The maximum market area size (furthest time and physical distances from whence any customer is attracted) is also not very much greater for the outlets in higher than lower order business areas (Statistical Appendix 7 - Tables 7.1, 7.2). But these customer and customer trip characteristics of the outlets in upper order business areas are combined with the attraction of customers from households which are, on average, of medium or high rather of medium or low incomes (Table 7.3); and with a greater average market area size and very much greater degree of market area penetration than the outlets of lower order business areas obtain (Table 7.3, Fig. VII.1). Accordingly,

in general, the groceries outlets of upper order business area obtain a greatly increased customer demand for their goods and services.

Although general differences may be discerned between the socio-economic characteristics and the market areas of outlets in upper and lower order business areas respectively, the outlets of each separate upper and lower order business area class still possess their own distinctive customer and market area characteristics. For example, the outlets of the major suburban regional shopping centre of Sandy Bay attract customers from households with much the highest incomes, but of very small size and with a mature age structure (Table 7.3). The outlets of this centre also have very much the greatest market area penetration of the outlets of any other business area class, although their average market area size does not vary greatly from the general norm for the outlets of upper order business areas (Fig. VII.1). The combined effects of very high customer household incomes, very intensive market area penetration and very large market area size probably gives these outlets the highest aggregate customer demand for their goods and services of the outlets of any upper or lower order class of business area.

In contrast, the outlets of another upper order business area, the C.R.A. (class J1), probably have a demand for their goods and services which is only slightly higher on the average than that for the outlets of the local shopping centres of class N2. The customers of the groceries outlets in the C.R.A. come from small households with only medium incomes and mature age structures, and the outlets' market area penetration, particularly in the zones from 3-5 minutes and 1/2-1 mile from the outlets,[15] is much lower than that of the outlets of the other upper order business area classes, N1 and J2 (Table 7.3, Fig.VII.1). On the other hand, the outlets of business area class N2 attract customers from younger, larger households and from households with high incomes. In addition, their average market area size and their market area penetration over a majority of time and physical distance zones are not much less than the market area size and penetration of the outlets of the C.R.A. (Table 7.3, Fig. VII.1).

A final example of the distinctive customer and market area characteristics of the outlets in each separate business area class is provided by the outlets of the two lowest order business area classes, N4 and J4. The outlets of these two orders of business area probably have the lowest customer demand for their product of the outlets of any class of business area. The outlets of class N4 have low customer demand because they have the lowest market area penetration over all time and physical distance zones of the outlets of any class of business area, and also because their customers come from small households with mature age structures and only medium incomes. In contrast, the outlets of business area class J4 have a much greater market area penetration especially within the closest time and physical distance zones. However, they still have a comparably low demand for their goods and services, for their average market area size is small, and their customers come from households which are larger but of considerably lower per capita income. (Table 7.3, Fig. VII.1).

To summarise, in Hobart, general increases in customer demand occur as groceries outlet location changes from lower order to higher order business areas. The increases in demand can be attributed to general differences in outlet market areas and in the socio-economic characteristics of the customers who visit upper and lower order business areas. But there remains considerable

differentiation of the outlets of each separate business area class with respect to the conditions giving rise to customer demand for an outlet's goods and services.

The Different Effects of Household Income and Market Area Size on Customer Demand in Different Classes of Business Area

Both the general differences in customer demand between the groceries outlets of upper and lower order business areas, and the particular differences between the outlets of separate business area classes, seem to be particularly strongly influenced by spatial variations in two of the three socio-economic characteristics of customers. These are customer household income and the number of juvenile dependents per customer household. For the largest scale outlets (supermarkets) and the smallest scale outlets (general stores) separately have the same pattern of change in these two customer characteristics with change in location as do all outlets together. However, the correspondence of the relations for all outlets together, for supermarkets, and for general stores seems much more significant in the case of customer household income, than in the case of number of juvenile dependents per customer household. For all groceries outlets together, for supermarkets, and for general stores, customer household incomes increase with change in outlet location from lower to higher order business areas, while average number of juvenile dependents varies but shows no consistent increase or decrease. (Tables 7.2, 7.3).

The small sample sizes of outlets and customers prevented an investigation of whether the variations in other customer trip frequency distributions (outlet market areas) between business area classes were similarly the same for all groceries outlets, for supermarkets and for general stores (Table 7.2). However, there is one piece of evidence which seems to show that parallel changes in outlet market areas do not occur in the case of the outlets of each business type. All of the supermarkets, groceries and general stores within each business area class have customer trip-distance frequency distributions which vary considerably about the norm for their class, while their customer socio-economic characteristics lie close to the class average.[16] This seems to indicate that, within each business area class, there are variations in the demand for groceries outlet goods and services which can be created by the ability of entrepreneurs of all three types of business to vary their mean and maximum market size and penetration, although their market areas contain relatively homogeneous customer households. Statistical Appendix 8, which contains maps of the market areas of the 40 sampled outlets in Hobart in 1964, shows most clearly the high degree of variability in the mean and maximum market area size and penetration which was obtained by the outlets within each different business area class. It remains true that general increases occur in the average groceries outlet market area size and penetration as outlet location changes from lower to higher order business areas. However, these general increases are not produced by the outlet's of each business type in each successively higher order business area class possessing the class mean market area size and penetration.[17]

The general increase in demand which occurs with change in outlet location from lower to higher order business areas therefore seems to arise from two sources. On the one hand, it arises from changes between business area classes in the proportion of outlets along the scales from small to large market area size, and from low to high market area penetration. On the other hand, it arises from both an increase in the average incomes served by the outlets of upper order business areas, and from a high degree of homogeneity in the income groups of the customer households which use the groceries outlets of all business types within each business area class.

Implications for the Relations Between Demand and Outlet Location by Type of Business Area

Strong, predictable but not always simple relations thus appear between customer demand and outlet location in lower order (N2 to N4; J3, J4) and upper order (N1, J1, J2) business areas. The existence of these very relations, however, means that little overall association appears between customer demand and outlet location classified by the N and J business area types (Table 7.2). The form of the associations of the most important customer and customer trip characteristics with outlet location by class of business area is the same for the outlets in the lower and higher order business areas of each N and J business area type. Within each N and J hierarchy, increases occur in the incomes of the households of the customers attracted to an outlet, and in outlet average market area size and penetration, as outlet locations change from lower to higher order business areas. Thus parallel increases in demand occur within each hierarchy, and no real difference exists between the demand for the products of all the outlets in N and J business areas respectively .[18] The parallel increases in outlet demand will occur despite the varying influence on demand of a different pattern of change within each hierarchy in the other socio-economic characteristics of customers, customer household size and customer household age structure (Table 7.3).

The conclusion that there is no significant difference in demand between all the outlets of N and J business types is in accord with the findings of earlier chapters. No real difference was found to exist either between the scales, costs and efficiency characteristics, and the price and non-price offers of the groceries outlets in the two different types of business area. Also, the lack of a significant relation between outlet location by type of business area and demand, as in the case of the other outlet characteristics, is not inconsistent with the hypothesis that strong predictable relations exist of outlet location and customer demand. For the lack of association between customer demand and outlet location classified by type of business area is clearly the result of the strong, predictable relations between outlet demand and outlet location classified by the classes of business area within each N and J business area type.[19]

Implications for Customer Demand for the Goods and Services of Outlets of Different Business Types

In Hobart, the strong, predictable relations which exist between customer demand and outlet location by class of business area have implications for the emergence of three identifiable types of groceries outlet. As groceries outlet location changes from lower to higher order business areas, systematic changes occur in outlet market area size and penetration and in the socio-economic characteristics of customer households; systematic changes also occur in outlet scale, cost and efficiency characteristics, and price and non-price offers.[20] All together, these systematic changes could result in distinctive classes or groups of outlets being formed, with outlets being classifiable by the characteristics of their customer households and market areas, as well as by their size, costs and efficiency and price and non-price offers.

Three such groups of outlets were originally identified in a very subjective way after inspection in the field in Hobart. These groups were the three business types, supermarkets, groceries and general stores. The distinctive nature of the outlets of these three business types has to some extent been objectively confirmed by

an analysis of their scale, costs, structures, and price and non-price offers.[21] It is further objectively confirmed by the analysis of the data for their customer and customer trip characteristics. Tables 7.2 and 7.4 show that statistically significant differences exist between supermarkets, groceries and general stores in their market area size and penetration (frequency distributions of customer trips by distances travelled), and in the socio-economic characteristics of their customer households.[22]

However, individual supermarkets, groceries and general stores do not have a homogeneous market area size or a homogeneous degree of market area penetration, or customers from households with homogeneous socio-economic characteristics. Moderate to high coefficients of variation are recorded for customer and customer trip characteristics of supermarkets, groceries and general stores (Statistical Appendix 6- Tables 6.1 to 6.3; Statistical Appendix 7 - Tables 7.1 to 7.2). The variations in customer demand for the products of the individual outlets of each business type, combined with the distinctive levels of demand for supermarkets, groceries and general stores respectively, further support one of the principal findings of previous chapters. In Hobart, systematic adjustments by groceries outlet entrepreneurs in location, scale, customer, customer trip and other operational characteristics result in the appearance of a wide range of combinations of groceries outlet size and other characteristics. However, these combinations are easily classifiable in the field as the three business types, supermarkets, groceries and general stores.[23]

TABLE 7.4

TABLE 7.4

CUSTOMER AND CUSTOMER TRIP CHARACTERISTICS OF SUPERMARKETS, GROCERIES AND GENERAL STORES

TYPE OF BUSINESS	Mean Av. Wkly Tkgs ($A) SCALE	Mean Av.In-come/ prsn/ h'h-$A	Mean Av.No per-sons/ h'h	Mean Av.No Jvnle Dpdnt/ h'hld	Mean No. Customers <1/8 mile from trip origin	Pn	Mean No. Customers 1/8-1 mile from trip origin	Pn	Mean No. Customers >1 mile from trip origin	Pn	Mean No. Customers <3 mins origin	Pn	Mean No. Customers 3 to 10 mins from trip origin	Pn	Mean No. Customers >10 mins from trip origin	Pn	Mean Total No. Custmrs fr all Distance Classes/ wkday[a]
		Customer CHARACTERISTICS			Physical Distance from Origin (miles)						Time Distance from Origin (minutes)						
		CUSTMR TRIP CHARS: FREQUENCY DISTRIBUTNS OF CUSTMR TRIPS/DSTNCE FR ORGN															
SM	9002	857	3.72	1.10	106	.06	829	.44	788	.43	98	.05	1129	.61	578	.31	1837
GRO	1676	932	3.66	1.31	56	.20	159	.45	65	.22	53	.23	173	.60	49	.17	285
GEN	574	863	3.84	1.24	54	.41	53	.39	21	.17	56	.41	59	.44	17	.13	134

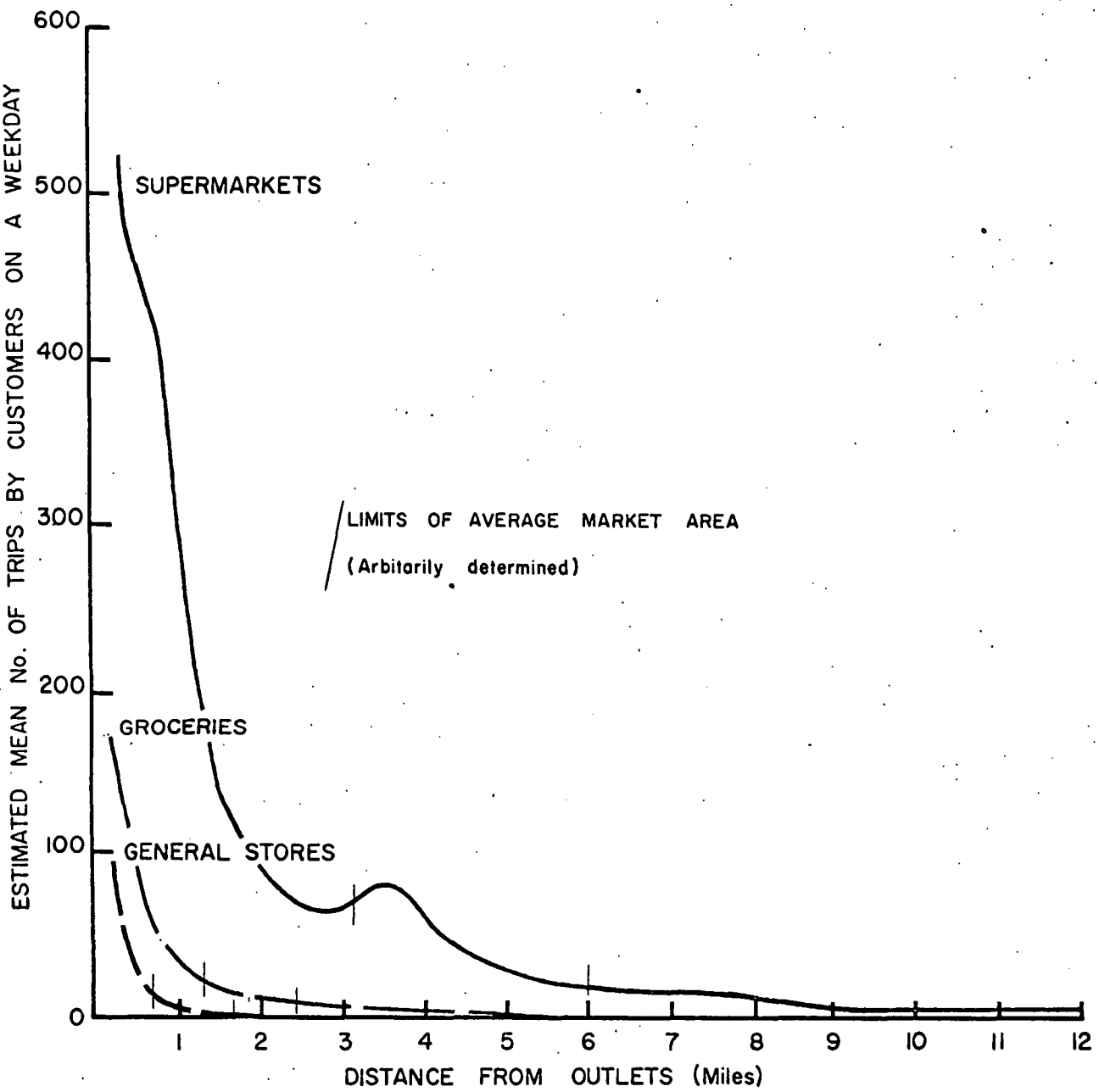
a Total includes customers whose distance from origin was not specified.

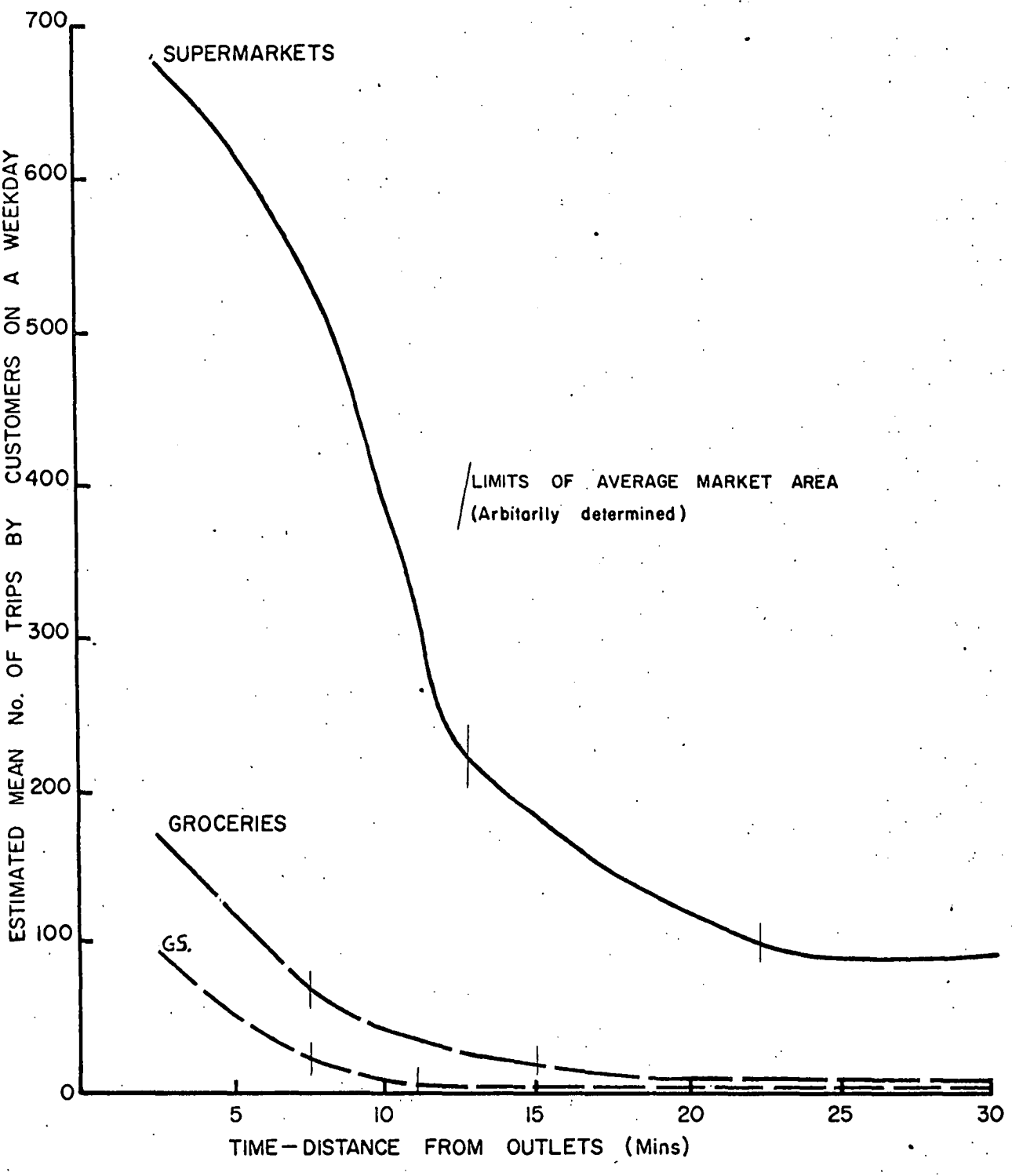
Sources: Statistical Appendix 4 - Table 4.1; Statistical Appendix 6 - Tables 6.1 to 6.3; Statistical Appendix 7 - Tables 7.1 and 7.2.

FIG. VII.2

FIG. VII.2 FREQUENCY DISTRIBUTIONS OF CUSTOMER TRIPS TO SUPERMARKETS, GROCERIES AND GENERAL STORES, BY DISTANCE IN MILES AND TIME DISTANCE FROM PLACE OF ORIGIN, HOBART, 1964.

Source: Statistical Appendix 7 - TABLES 7.1, 7.2.


600
500
400
300
200
100
0
ESTIMATED MEAN No. OF TRIPS BY CUSTOMERS ON A WEEKDAY
SUPERMARKETS
GROCERIES
GENERAL STORES
LIMITS OF AVERAGE MARKET AREA
(Arbitarily determined)
1
2
3
4
5
6
7
8
9
10
11
12
DISTANCE FROM OUTLETS (Miles)


700
600
500
400
300
200
100
0
ESTIMATED MEAN No. OF TRIPS BY CUSTOMERS ON A WEEKDAY
SUPERMARKETS
LIMITS OF AVERAGE MARKET AREA
(Arbitarily determined)
GROCERIES
G.S.
5
10
15
20
25
30
TIME – DISTANCE FROM OUTLETS (Mins)

INTERPRETATION OF THE GROSS RELATIONS OF LOCATION AND DEMAND

The Interrelation of Outlet Location and Customer Demand

Many theoretical and empirical studies suggest that the observed strong predictable relations between groceries outlet location and the socio-economic characteristics and travel behaviour of outlet customers should be interpreted as close, spatial and temporal, two-way relations between outlet location and customer demand.[24] For example, it is implicit in Chamberlin's Theory of Monopolistic Competition that interactions occur between retail outlet location and aggregate customer demand for the outlet's product.[25] The site chosen by a retail entrepreneur is a means of differentiating his 'product' in competition for revenue by offering more or less convenience to customers than is offered by competing outlets. The greater the relative convenience offered, other things being equal, the greater the number of customers attracted to the outlet from any distance zone (that is, the greater the market area penetration), and the greater the average and maximum extent of the outlet's market area. The entrepreneur's decision concerning his entry at or continued occupation of a site, that is, his decisions concerning the offer of a 'product' with a particular degree of convenience, will therefore influence the demand function of the outlet. In addition, the demand function for an outlet in any location will be affected by the socio-economic characteristics of customers, and especially by their incomes. Thus the entrepreneur's decisions concerning a site (a particular variety of locationally differentiated product) will influence customer demand, firstly, through the appeal of the convenience of his 'product' relative to the convenience of products offered elsewhere, and secondly, by affecting the socio-economic characteristics of the customers who may prefer to use the store. Because a retail entrepreneur's decisions concerning his site do influence customer demand for his product in these several ways, location is used by entrepreneurs over the middle-run as a means of competition like price or advertising.

On the other hand, according to Chamberlin, while variations in outlet location will cause variations in customer demand, the variations in customer demand which can be obtained at different possible locations (by supplying different locational product varieties) will help determine the profit maximising location chosen by the entrepreneur. The demand which a retail entrepreneur can obtain in each different possible location (for different locational varieties of product), including his present one if any, will vary in part with the sites chosen by competing entrepreneurs (their locational varieties of product). Customer demand at any site depends in part, not upon any absolute degree of convenience provided to customers, but on the convenience provided relative to the convenience of the sites of competing entrepreneurs. There will therefore be a continuous variation of the profitability of, and customer demand at, a particular site considered by the retail entrepreneur (any particular locational variety of product) relative to the profitability of alternative sites (other possible locational varieties of product), as the sites of other competing entrepreneurs change (as the locational varieties of product offered by competitors vary). The continuous variation in demand which will be found by an entrepreneur at each of a possible set of sites as competitors vary their sites will cause continuous and different decisions to be made as to which is the entrepreneur's profit-optimising site. Consequently, for a group of entrepreneurs of a retail trade who compete by using locational product differentiation (by choosing different sites), there will be continuous interaction over space and time between their own location and their customer's demand for their product.

Chamberlin's theoretical analysis of the interaction of retail outlet location and customer demand is in accord with the findings of empirical studies by marketing geographers.[26] The site which is chosen for an outlet by a firm's location research office is used as a means of competition to increase or protect the firm's share of the market. Which site is selected initially depends upon the anticipated profits at alternative sites. The anticipated profits at each site in turn depend principally upon the estimated total number of households who are likely to visit the store because it offers more convenience (is more accessible) than any likely competitors', that is, the anticipated profits at any given site depend upon the estimated trade area which can be carved out of existing firms' trade areas. Anticipated profits depend very greatly too upon the socio-economic characteristics of potential customers. Following the selection of the anticipated maximum profits location, continuous reassessment of the 'success' of the site chosen is made, especially in view of the possible effects on demand of competitors' responses and of the attraction of new competitors to the area should the site prove initially very successful. Sometimes the reassessments will lead to the closing down or the relocation of the outlet, or to the planning of the location of new outlets in the area to help counteract competition. Thus a continuous interaction is set up of store location and customer demand over the middle-run.

In the present study, the interpretation of the observed associations of retail outlet location and customer demand as close two-way relations helps account for the locational structure of groceries retailing in Hobart in 1964. The interpretation thus provides additional evidence of the support given by the data for Hobart's groceries outlets to the first and major hypothesis of this work : "that the locations of the establishments of a retail trade become significantly interrelated in predictable ways with many other of their own characteristics (including the customer and customer trip characteristics which govern the demand for their product)".

General Interpretation

In the case of Hobart's groceries outlets, the observed overall relations of outlet location by class of business area with customer demand may be interpreted as a reflection of two linked cause-and-effect situations. On the one hand, in Hobart, an initial change over space or time[27] in groceries outlet location from lower order (N2 to N4; J3, J4), to higher order (N1, J1, J2) business areas will be used as a means of competition by entrepreneurs to increase their revenue. For a change in groceries outlet location from lower to higher order business areas will, on the average, be the cause of an increase in customer demand through

(i) the attraction of customers from medium and high rather than medium and low income households;

(ii) an increase in average market area size;

(iii) an increase in market area penetration;

(iv) the retention of a lesser degree of variability in customer incomes than in market area size and penetration.

There will be differences in the extent of the increase in customer demand, depending on the precise higher order business area (N1, J1, or J2) towards which the change in location is preponderantly made. The

increase in demand for outlet goods and services will be greatest if the change is preponderantly towards the regional shopping centres of high income suburbs (in the centre of business area class, J2, Sandy Bay), and next greatest if the change is preponderantly towards regional suburban shopping centres elsewhere (N1 centres).[28]

Now the perception by entrepreneurs of the demand and profit increases which have been attained and are attainable in upper order business areas, and the elimination of smaller competitors as entrepreneurs in upper order areas expand their market areas, will in turn be the cause of other changes in outlet location from lower to higher order business areas. Thus initial changes in groceries outlet location in Hobart from lower order to higher order business areas will be the cause of changes in demand, which in turn will be the cause of other changes in outlet location. This argument is consistent with evidence from elsewhere of the factors causing changes in retail location within cities. For example, Simmons has observed that, in Chicago, temporal changes in retail location from lower to higher order business areas were followed by increases in establishment average market area size, and thus by increases in customer demand for their 'product'. The increased demand for outlet goods and services in upper order business areas caused further shifts in outlet location from lower to higher order business areas, as new entrants were attracted to the more profitable upper order locations, and as some of the marginal smaller-scale competitors in lower order business areas are eliminated.[29]

The changes in demand which in Hobart follow a change in groceries outlet location will be a reflection in part of changes which occur in the frequency distribution of customer trips by distance from their place of orign to an outlet.[30] These changes in outlet customer trip-distance frequency distributions will themselves define a change in a further aspect of outlet location, that is, in the distances and directions which an outlet lies away from the locations of the customers attracted to its site. This aspect of an outlet's location was earlier termed its short-run location.[31] From the study of Hobart's groceries outlets, it seems that a change in outlet location from lower order to higher order business areas will be followed by a change in outlet customer trip-distance frequency distributions, in short-run outlet location, in outlet market area size, and in demand. And these latter changes will be followed in turn by other changes in outlet location from lower order to higher order business areas. Thus the series of changes in groceries outlet location by class of business area and in demand will embrace a further series of changes between shorter - and longer-run outlet location. The situation is summarised diagrammatically in Fig. VII.3.

On the other hand, the alterations in outlet location by class of business area and demand may be approached from another direction. There may be an initial spatial or temporal increase, on the average, in the demand for the goods and services of Hobart's groceries outlets. This will occur, either, firstly, if the incomes of households tend to rise, or secondly, if there is a technological innovation (e.g. the motor car) such that the possible average size and penetration of outlet market areas increase, or thirdly, if both situations occur together. The resultant increase in demand will be the cause of a change in groceries outlet location from lower to higher order business areas. This will be so because the entrepreneurs of at least some of the outlets in upper order business areas, which are more accessible to customers, will be able to exploit to greatest advantage increases in household incomes and increases in possible market area size and penetration. Accordingly, new entrant entrepreneurs will prefer to locate in upper

order business areas while existing outlets in upper order business areas will tend to be preserved, and some of the marginal firms in lower order business areas may leave the market as locations in upper order areas are effectively used to increase market area size. Thus groceries outlet locations will change from lower to higher order business areas. These arguments are in line with evidence from other cities. For example, studies in Chicago showed that a change occurred in the locations of the outlets of many retail trades from lower to higher order business areas, following a rise in household incomes, and an increase in possible average market area size and penetration as more customers shopped by car.[32]

But, in Hobart, any change in groceries outlet location from lower to higher order business areas which is initiated by an increase in demand will in turn be the cause of further changes in the socio-economic characteristics and travel behaviour of outlet customers. The sorts of change which will occur following a change in outlet location from lower order to higher order business areas have already been described. Thus the second series of changes which follow from an initial change in demand link in with the first series of changes which follow from an initial change in location. Together, both series comprise the overall interrelation of groceries outlet location and demand which is summarised in Fig. VII.3.

An initial change in either outlet location or in the demand for outlet goods and services may be effected in turn by a change in other endogenous variables. In particular, spatial variations in the competitive characteristics of Hobart's groceries outlets or in outlet price and non-price offers may be expected to have some influence on the changes in the socio-economic characteristics and travel behaviour of customers who are attracted to different classes of business area. Alternatively, the whole pattern of change in outlet location and demand may be dependent upon the current state of certain slowly-changing exogenous variables. In particular, for example, the distribution of personal incomes in the community and the modes of transport available for use on shopping trips might be expected to underlie the variations in the incomes and travel behaviour of the customers attracted to the different classes of business area. However, the precise chain of effects set up by the impact of important endogenous and exogenous variables may be more properly discussed later, when interest is centred on selected primary and secondary relations of customer demand and location.

The interrelation of Fig. VII.3 implies that the mutual relations of demand and location operate in very similar ways within the hierarchy of lower order and upper order N centres, and within the hierarchy of lower order and upper order J centres. This is consistent with the findings of previous chapters that spatial or temporal changes from locations in J business areas to locations in N business areas of similar lower or higher order will represent no significant change in location, and that no interaction with other variables will be set up.[33] It is also consistent with the findings from the data for groceries outlets in Hobart that no significant association actually existed between outlet location classified by N or J business area type, and the demand for an outlet's goods and services. (Table 7.2).

Explanation of the Locational Structure of Groceries Retailing in Hobart in 1964

The interrelations of outlet location and demand help account for many of the outstanding features of the locational structure of

groceries retailing in Hobart in 1964. They add to the partial explanations already given in the last three chapters by the mutual relations of outlet location with outlet scale, outlet competitive characteristics, outlet costs structure and outlet price and non-price offers. On the basis of the interrelation of outlet location and customer demand, it seems that the total profits attainable may be assumed to be exceptionally high for some outlets in the few highly accessible upper order N and J business areas in Hobart. For here a handful of entrepreneurs will be the only ones who can attract predominantly high income households and at the same time have the maximum average size of market area and the maximum market area penetration. The upper order business areas will therefore be very attractive to retail groceries outlet entrepreneurs. Conversely, customer demand and total profits will decline, but may remain above the minimum necessary for continued operations, down through the many locations in each successively lower order N and J business area class. Locations in any lower order business area class can be used to supply the needs of households of distinctive socio-economic characteristics, and a distinctive degree of market area penetration can be obtained. Nevertheless, the many locations in the numerous lowest order business area classes will provide the lowest customer demand for outlet goods and services and the least profits of all. (Table 7.3, Fig. VII.1).

Bearing these considerations in mind, the following features of the locational structure of groceries retailing in Hobart are readily explicable;[34]

(i) that the six upper order N and J centres had attracted the greatest number of outlets per centre, and had the highest proportion of business areas possessing groceries outlets;

(ii) that the highest number of groceries outlets still existed in lower order N and J business areas;

(iii) that there were only nine very large scale outlets (supermarkets) and these were exclusively located in higher order N and J business areas;

(iv) that a larger number of middle-size outlets (groceries) could exist in all classes of business area, though be predominant in upper order business areas;

(v) that numerous small-scale outlets (general stores) could exist concentrated in lowest order business areas;

(vi) that the groceries outlets of the highest order business areas were comprised largely of supermarkets and general stores, the largest and the smallest outlets;

(vii) that medium and small-scale outlets (groceries and general stores) were typical of middle to lower order business areas;

(viii) that the smallest-scale outlets, general stores, were dominant in the very lowest order business areas.

FIG. VII.3

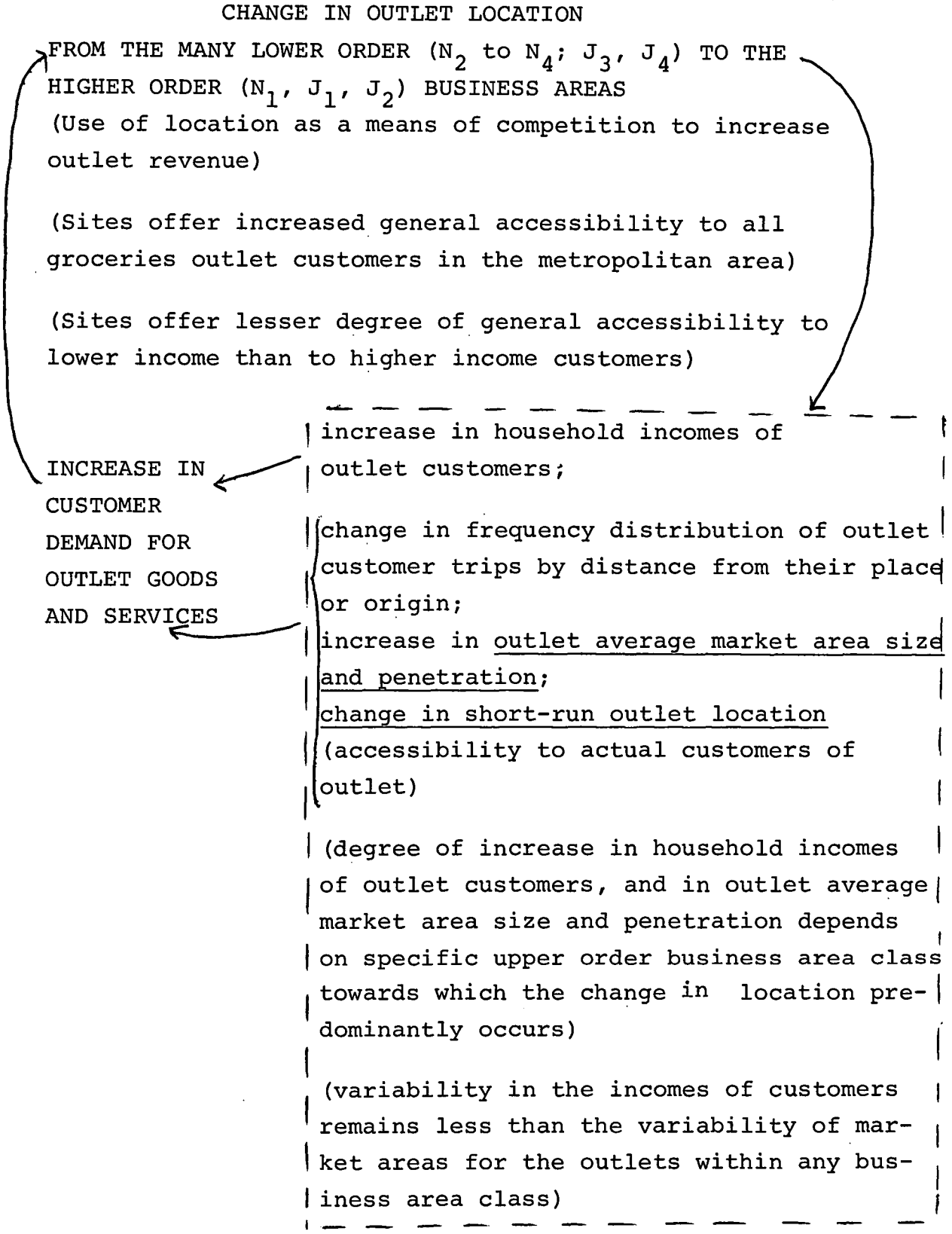


FIG. VII.3 INTERDEPENDENCE OF DEMAND AND LOCATION BY CLASS OF BUSINESS AREA, GROCERIES OUTLETS, HOBART

PRIMARY AND SECONDARY RELATIONS - DEMAND AND LOCATION

Summary of Discussion

The observed overall interrelation of outlet location and customer demand helps to account for the locational structure of groceries retailing in Hobart in 1964. It also gives considerable support to the first and main hypothesis of this work: "that the locations of the outlets of a retail trade become interdependent in predictable ways with many other of their own characteristics (including their customer and customer trip characteristics which affect the demand for their goods and services)". But a more detailed analysis remains to be made of the principal ways in which the observed gross interrelation may be effected through the impact of other endogenous or exogenous variables on location or demand. That is, a more detailed analysis remains to be made of the important primary and secondary linkages which make up the overall relations of outlet location and customer demand.[35]

The most important variables which impinge upon the overall interrelations of outlet location and customer demand are those which affect the distances travelled to outlets by customers of different socio-economic groups.[36,37] There have been a number of theoretical and empirical studies in very diverse fields of the factors which influence the customer's choice of shopping place. That is, there have been a number of studies of the factors which may determine the sorts of customer household whose members will visit the outlets in different classes of shopping centre and the distances which their members will be prepared to travel. Consequently, many hypotheses could be advanced concerning the variables which might effect an observed pattern of association of customer demand and outlet location by class of business area. In the following analysis, an attempt is made to bring together the main variables which are considered to affect customer trip distances in existing theoretical and empirical studies. An attempt is also made to suggest the ways in which these variables could influence a pattern of variation in outlet demand with variation in outlet location from lower order to higher order business areas. These suggestions are then compared with the data for Hobart's groceries outlets. It is shown that a reasonable explanation seems to be provided of the ways in which the demand for Hobart's groceries outlet goods and services becomes interrelated with outlet location by class of business area.

The following analysis further reveals the usefulness of the first and major hypothesis of this work in accounting for retail location. Firstly, the analysis helps to show that not only may the hypothesis be used to identify the most important variables like customer demand which are associated with an observed pattern or retail location; it may also be used to identify the precise ways in which such variables become interrelated withoutlet location. Secondly, the following detailed analysis gives added substance to the explanation of the locational structure of Hobart groceries retailing which was provided by the study of the hypothesized and observed overall relations of outlet location and customer demand.

Fig. VII.4 summarises a very complex pattern of linkages between outlet location, demand, and no less than seven types of endogenous variable, and three types of exogenous variable. It is suggested that this pattern of linkages effects the overall interrelation of outlet location and customer demand for the 'product' of the outlets of a retail convenience goods trade. Because of the large number of exogenous and endogenous variables, and because of their complicated linkages, the suggested relations between them and the ways in which they effect the overall interrelation of customer demand and outlet location can only be briefly described.

FIG. VII.4

TABLE 7.5

Effects of Attributes of Outlet Location by Class of Business Area on the Socio-Economic Characteristics and Travel Behaviour of Outlet Customers

Given the present state of three exogenous variables - the distribution of personal incomes within the community, the alternative modes of transport available to customers, and current intra-urban systems of persons movement - outlet locations in different classes of business area can be used as a means of competition by the entrepreneurs in a convenience goods trade to increase demand for their product. Certain attributes of the location of an outlet in upper order business areas will, on the average, permit the attraction of more customers from medium and upper income households, and of a greater number of customers from places of origin in all the distance zones away from an outlet.

Effects of the Spacing of Upper Order Business Areas, Together with the Distribution of Personal Incomes within the Community, on the Socio-Economic Characteristics of Outlet Customers

The distance to other upper order business areas is one attribute of a location in an upper order business area which has a direct effect on the socio-economic characteristics of outlet customers. Other things being equal, a change in the locations of the outlets of a convenience goods trade from the many closely-spaced lower order to the few widely-spaced higher order business areas will increase the distances which customers within the metropolitan area will need to travel to purchase their goods, and will therefore increase the total time plus money costs of travel to customers (Table 2.10)[38] As total travel costs increase, there will be a decline in the aggregate household demand for travel to the locations in upper order business areas which will be greater the less money households can allocate for expenditures on travel, and the less time members of households can allocate for travel. Thus, with a change in outlet location from closely-spaced lower order to widely-spaced higher order business areas, outlets will become relatively more accessible to households with higher than with lower incomes. They will also become less accessible to households where customer-members may have their time available for travel limited for any reason: for example, because customers are housewives and have their shopping time limited by the need to care for large households, or for households with large numbers of juvenile dependents; because customers are from households with larger numbers of adult employees who work during store trading hours; because members of households have less access to faster means of transport (e.g. a car) for shopping purposes. Therefore, over a middle-run period, a change in outlet location from lower to higher order business areas should permit entrepreneurs to increase the demand for their product by attracting an increased proportion of customers who are from households in middle and upper income brackets, and/or from more mobile types of household.

However, the pattern of increase in demand will depend on the frequency distribution for the current middle-run period of households within the urban community by income, size, number of juvenile dependents, number of adults employed and car ownership rates. A change in outlet location from lower to higher order business areas will be most effective as a means of increasing demand if a high and slowly increasing proportion of the households are in middle and upper income brackets, or are of small size and have a small number of juvenile dependents, or have a low number of adult persons employed, or have high car ownership rates. If any of these conditions hold, then a

very much larger number of households will have a stronger rather than a weaker preference for outlets in higher order business areas. But the greatest advantage from changing from lower to upper order business areas will be gained if considerable disparity remains over the middle-run in the incomes, size, age structure, number of persons employed, and car ownership rates of urban households. For if these conditions hold, the maximum diversity may be expected in the incomes and mobility of customers attracted to higher and lower order business areas, and the maximum change in demand will occur with change in outlet location from one class of business area to another.

Now studies of the demographic characteristics of the urban population suggest that one exogenous variable, the distribution of personal wealth within the community, will have a particularly strong effect on the frequency distributions of households by size, number of juvenile dependents, number of adults employed full-time, and the means of transport available to household members.[39] As household incomes rise in most cities in Western societies, household size and the number of juvenile dependents decline on the average, and there is a rise in the car ownership rate. However, there is very little indication that the distribution of income becomes more equitable within the community. As a result, over a current middle-run period, a proportion of households remain in the lower income, large family size; large number of juvenile dependents, and low car ownership classes. In addition, as incomes within the urban community rise, the number of adult persons employed per household also tends to rise; however, the larger number of those employed occurs in lower-income rather than higher income households, where economic necessity still sends a high proportion of married females into the workforce and where young adults do not enter tertiary education.[40]

The nature of the current distribution of personal wealth within an urban community will therefore provide for a high 'locational elasticity of demand'[41] for the 'product' of the outlets of a convenience goods trade. A change in outlet location from lower order to higher order business areas can be very effectively exploited to increase customer demand by outlet entrepreneurs. Over a current middle-run period, under conditions of gradually rising personal disposable incomes but inequitable distribution of income within the community, a change in outlet location from the many closely-spaced lower order business areas to the few distantly-spaced higher order business areas may be used to attract a very greatly increased number and a higher proportion of customers from the community's mobile middle and upper income brackets.

The spacing of business areas, given the present distribution of wealth within the urban community, thus has a primary effect[42] on the socio-economic characteristics of outlet customers. The suggested linkages of the spacing attributes of outlet location, the socio-economic characteristics of outlet customers, and demand are summarised in Fig. VII.4, in the sections labelled "Change in Outlet Location", "Change in the Personal Incomes of Customers", and "Change in Customer Characteristics."

Effects of the General Accessibility of Upper Order Business Areas on the Modes of Travel and Frequency of Visit of Outlet Customers, and on Outlet Market Area Size and Penetration

Another attribute of the locations of the outlets of a convenience goods trade in upper order business areas will greatly influence customer demand. It will operate through its effects on the distances customers may be willing to travel to outlets in upper rather than lower order business areas. Sites in upper order business areas offer increased general accessibility to customers within the metropolitan area, lying as they do on principal highways, at major

route intersections and on a number of public bus routes (e.g.Fig.VI.3). The total time plus money expenditures per unit distance travelled will, on the average, be lower for all the customers within the metropolitan area to reach a location in any particular upper order regional centre than to reach a location in any particular lower order business area, whatever their least costs modes of travel. In general, therefore, larger numbers of customers will be expected to use outlets in an upper rather than a lower order business area. This will give an increased average market area size and penetration to outlets in upper order business areas directly as a result of the high degree of general accessibility of their location.[43]

Outlet locations in upper order business areas will provide for generally lowered total time and money expenditures on travel, in part because they will enable the easier substitution of faster and/or less expensive modes of travel which are currently available for shopping purposes. An outlet location in an upper order business area astride a major highway at a local route intersection and on public transport routes will permit those customers within the metropolitan area who are beyond the outlet's walking distance zone[44] to substitute with less cost on the average travel by bus or car than an outlet location elsewhere. A location in an upper order business area will also permit those customers beyond the areas served by public transport[45] to substitute with less cost travel by car than an outlet location elsewhere. In particular, a location in the upper order C.R.A., at the focus of the public transport system but with traffic congestion and lack of parking space, will provide for much easier substitution of public transport for any other mode of travel.

In general, therefore, given the current modes of transport within the urban community, outlet locations in upper order business areas will attract customers from a very much greater number of households of all types from places of origin at increased distances away from the outlets (say, from over 1/4 to 1/2 mile away). An increase in demand will result for the goods and services of the outlets in upper order business areas.

This increase in demand will occur despite the fact that the number, though not the aggregate size, of the transactions of customer households per unit time period may be expected to decline. Bus and car transport from places of origin at greater distances will lead to predominantly once-a-week or less one-stop shopping in the place of predominantly many times a week visits on foot for the outlets of upper order business areas.[46]

Following from these arguments, it will be expected that a change in outlet location from less generally accessible lower order business areas to more generally accessible higher order business areas will attract larger numbers and a higher proportion of outlet customers who travel by car or bus, who make visits of once a week or less, andwho come from places of origin in distance zones further away from outlets. The increased general accessibility of locations in upper order business areas will therefore be exploited by at least some of the entrepreneurs of a retail trade to increase their average market area size and penetration, and to thereby increase the demand for their product by households within the metropolitan area.[47] These conclusions are summarised in Fig. VII.4 by the linkages between "Changes in Outlet Location" (①) "Changes in Modes of Travel" (③) and "Changes in Frequency of Visit" (④) and "Changes in Customer Trip Distances".

The general accessibility of locations in upper order business areas will not only be responsible for attracting an increased number of customers from households of all types from greater distances. It will especially help to attract greatly increased numbers of medium to high income customers from further distance zones away from an outlet in an upper order business area. It has already been observed that, because of their greater ability to meet the time and money costs of travel to outlets in widely-spaced upper order business areas, customers from higher income households will in general be relatively more accessible to outlets in upper order business areas than customers from lower income households. But outlets in upper order business areas will be particularly accessible to higher income customers for another reason :medium and high income groups will be better able than low income groups to take advantage of the position of higher order business areas astride major route intersections and public transport routes. For they will be better able to substitute car or public transport for foot travel, or car for any other type of travel, from places of origin at further distance zones from an outlet.

It will therefore be expected that a change in outlet location from less generally accessible lower order business areas to highly accessible upper order business areas will lead to an increase in particular in the number and proportion of outlet customers who come from medium and high income households, who travel by bus and car, and who come from places of origin at increased distances away from an outlet. Consequently, the relatively greater degree of general accessibility of higher order business area locations to higher income rather than lower income customers will be used by the entrepreneurs of the outlets of a retail trade to gain both an increase in the incomes of customers attracted and also an increase in outlet average market area size and penetration. Fig.VII.4 shows the linkages between changes in outlet location by class of business area, changes in the incomes and associated socio-economic characteristics or outlet customers, changes in customer modes of travel, and changes in average market area size and penetration.

Effects of the General and Special Accessibility[48] of Upper Order Business Areas on the Origin-Destination and Trip Purpose Combinations of Outlet Customers, and on Outlet Average Market Area Size and Penetration

There is yet a further way in which attributes of locations in upper order business areas may be used by entrepreneurs to increase market area size and penetration, and thereby the demand for their product. The locations of outlets in upper order business areas are adjacent to principal traffic routes, and therefore lie along the main lines of the major intra-urban systems of movement, especially the home-work, work-home system.[49] Locations in upper order business areas thus possess a high degree of general accessibility to customers concentrated at 0-dimensional points representing places of work or places of other large group activities within the city (e.g. recreational facilities), and to customers in unidimenionsal linear flows between their major trip bases,[50] as well as to customers in two-dimensional areal distributions at their place of residence.[51] Increased accessibility to customers in movement and at their major trip bases besides their place of residence will give entrepreneurs in upper order business areas an increased ability to attract customers to stop and shop from many more varieties of trip with origins and destinations in the distance zones surrounding their outlets. In this way, the number of customer trips made from places of origin within any distance zone may be increased. As a result, given the channelling

of present intra-urban movement systems past upper order business areas, locations in upper order business areas will enable entrepreneurs to increase market area size and penetration.

In particular, it will be expected that an increase in outlet average market area size will be achieved by the attraction of a larger number of customers on trips with one or both bases which are not their places of residence. Especially, there will be increases in the number of trips with one work base, and in the number of trips by adult employed males. For the outlets in the upper order C.R.A., where the majority of urban workplaces are still located,[52] there will be a particularly high number of work-work as well as home-work and work-home trips.

It is difficult to suggest the proportion of an outlet's total customer trips which the increased numbers of non-home-home trips could comprise in an upper order business area. This depends on the magnitude of the increase in home-home trips which will occur as a result of the other factors mentioned, relative to the magnitude of the increase in the number of non-home-home trips. Because home-home trips remain the dominant sort of shopping trips,[53] much greater increases in the number of these trips might occur - in response to the factors so far mentioned, - than in the number of non-home-home trips. Accordingly, while a change in outlet location may cause an increase in market area size and penetration through the attraction of larger numbers of customers on non-home-home trips, this could be associated with a decline in the proportion of an outlet's total trips which non-home-home trips comprise.

This latter situation will arise especially ifmany customers on trips with one but not two home bases (e.g. the important home-work, work-home trips) stop off to purchase at one of the lower order locations close to their homes, rather than at a higher order location. Under these circumstances, outlets in upper order business areas might attract a relatively lower number of non-home-home trips than expected, and non-home-home trips might comprise a smaller proportion of the total trips to an outlet than would otherwise be expected.[54]

There is one final attribute of a retail location in upper order business areas which, when combined with current intra-urban movement systems, will have an influence on outlet market area size and penetration. The location of an outlet in an upper order business area has a high degree of 'special accessibility', that is, a high degree of proximity to other retail establishments and tertiary facilities (e.g. Table 2.9). Purchases at an outlet in an upper order business area may be combined with the use of other retail establishments and tertiary services at the same time. Observations of current intra-urban shopping movement systems suggest that there are a limited number of specific types of tertiary facility which a customer will want to visit at the same time as a visit to any particular type of retail outlet.[55] A single trip to an outlet in an upper order business area thus appears to permit considerable savings on the total expenditures involved in travelling on a separate trip to the other types of tertiary facility visited on the same trip. In addition, 'more value for the same money' may be obtained by being able to compare the prices and/or services offered at the different establishments in upper order business areas.

There is therefore a high probability that customers for the goods of any particular type of convenience goods outlet, and who live within any distance zone from an outletin their nearest higher

order centre, will regularly prefer an outlet in the nearest upper order centre on a multiple purpose trip.[56] The market area size and penetration of upper order business area outlets and the customer demand for their goods and services will thereby be increased.[57] Fig. VII.4 shows all the suggested linkages of outlet location by class of business area, types of customer trip by origin-destination and trip purpose combinations, outlet market area size and penetration, and intra-urban movement systems.

To briefly summarise, given the current nature of intra-urban travel systems, and the current available modes of travel, and the current distribution of income within the urban community, a change in outlet location from lower order to higher order business areas will be used by entrepreneurs as a means of competition to increase customer demand for their product. For various attributes of locations in upper order business areas - their spacing, their general accessibility, their relatively greater general accessibility to customers of medium to high income groups, and their special accessibility - will lead to an increase in the incomes of outlet customers, and to an increase in the total number of customer trips from each, and especially from the further of the distance zones surrounding an outlet. Increases in the aggregate number of trips by high-income customers, in the aggregate number of trips by car and bus, and in the aggregate number of non-home-home trips and multiple purpose trips will be especially responsible for the increase in demand for the goods and services of outlets in upper order business areas.

Other Influences on the Demand for Outlet Goods and Services in Different Classes of Business Area; the Interaction of Demand and Location

Effects of Competition and Outlet Price and Non-Price Offers on Demand

The degree of competitiveness and the price and non-price offers of outlets in upper order business areas will make for further variations in outlet market area size and penetration about the increased 'base level' gained simply through location in upper rather than in lower order business areas. Once in a favourable upper order location, entrepreneurs will be very active in their attempts to protect or increase their profits by acting to retain or increase their market area size and penetration. Their chief competitors will be similarly aggressive entrepreneurs in similarly advantageous locations.

Entrepreneurs in upper order business areas will therefore pay particular attention to attracting new customers especially from the marginal distance zones just beyond their present trade area, and to holding their existing customers and increasing their expenditures. Combinations of outlet price and non-price offers will be devised which will be particularly effective in increasing the advantages to the customers of shopping at their outlets rather than others. In order to 'get customers to the store' by disseminating knowledge as to where the 'best buys' are to be obtained, entrepreneurs in upper order business areas will offer heavily advertised lowered prices over a diversified range of goods. In the case of the outlets in upper order business areas in high income suburbs, there may be an increase in the level and variety of services offered as well.

The combinations of outlet price and non-price offers and the competitive characteristics of outlets in upper order business areas will therefore lead to further increases in outlet average market area size and penetration, above the level afforded by location in upper rather than lower order business areas. Especially high penetrations of the zones close to outlets in upper order business areas may be achieved because the delivered prices[58] of their goods to the customers in these zones will be much lower than the delivered prices of goods obtained from outlets elsewhere. Aggressive competition by the entrepreneurs of upper order business areas in price, service and range of goods might also produce some degree of variability in individual outlet price and non-price offers, and in individual outlet market area size and penetration.

On the other hand, the less highly competitive entrepreneurs of the outlets of lower order business areas may be expected to offer different combinations of outlet price and non-price offers. Their offers will provide protection or even extensions of their market areas against the aggressive competition in upper order business areas. Entrepreneurs will stress different combinations of price and non-price offers which will appeal to the lower income, lower mobility households, or to household members on one-home-base trips, who are less easily attracted to the outlets in higher order business areas;[59, 60] for example, entrepreneurs may extend low prices on high demand goods, credit facilities and on order and delivery service. By doing this, the entrepreneurs of lower order business areas will not only protect or increase their market area size and penetration, they will also maintain their average transaction size. Fig. VII.4 summarises the suggested linkages between outlet competitive characteristics (θ), outlet price and non-price offers(∅) outlet market area size and penetration and their variability, customer demand for outlet goods and services, and outlet location.

The Interaction of Demand and Location

In sum, it can be seen that very many variables will operate to differentiate the socio-economic characteristics and travel behaviour of the customers of outlets in lower and higher order business areas. The operation of these variables provides opportunities for the entrepreneurs of a retail trade to use changes in location as a means of competition over the middle-run, in conjunction with short- and middle-run changes in their price, service and range of goods. Over the middle-run, for the group of outlets of a retail trade, it will be expected that the increase in the purchases of higher income customers and in the market area size and penetration which can be gained in locations in upper order business areas will set up an interaction between change in outlet location from lower to higher order business areas and change in customer demand for outlet goods and services.

Given the current distribution of income within the urban community, the alternative modes of transportation available, and the nature of intra-urban travel systems, the greater demand for the goods and services of outlets in upper order business area will enable them to increase their scales of output, and presumably also their profits. Any new competitors will be attracted to upper rather than lower order business areas; existing competitors in upper order locations will tend to be preserved; and some of the marginal smaller competitors in lower order business areas will leave the market as the larger scale outlets' market areas encroach on theirs despite their distinctive price and non-price offers. Thus a change in

outlet location in the trade will occur from lower to higher order business areas as competition takes place in location, price, service and range of goods. The change in location will in turn be followed by further increases in expenditures per household at outlets in upper order business areas and in outlet average market area size and penetration. And again, still further shifts in location will follow.

The whole complex interaction is portrayed by the whole of Fig. VII.4. The figure shows the linkages between all the variables which influence the locations of the outlets of a retail trade, through their effects on the assessment by customers of the costs and advantages of travelling to outlets in upper and lower order business areas, which determines their final choice of the outlet in a centre which will maximise their net returns.

Fig. VII.4 also shows how the overall interrelation of outlet location by class of business area and customer demand contains another relation between outlet location by class of business area and short-run outlet location relative to the locations of customers. For outlets in upper order busines areas, customer locations will be at an increased range of distances from the outlets, and a higher proportion of customer locations will be 0-dimensional (points representing places of work, recreation etc.), and one-dimensional (the linear flows of customers in intra-urban travel systems) rather than two dimensional (areal spread by place of residence). In addition, entrepreneurs in upper order business areas have increased control over their own short-run locations through their ability to lower prices, use more advertising, to increase their range of goods and to increase their services, and thus to define the parts of the city from which they will attract their customers.

Comparison of the Suggested Linkages of Demand and Location with Data for Hobart's Groceries Outlets

Associations Revealed by the Data for a 1964 Cross-Section of Hobart's Groceries Outlets

If the suggested relations which are summarised in Fig. VII.4 hold for the outlets of a retail trade, then it will be expected that the following spatial associations will be revealed by the data for the 1964 cross-section of Hobart's groceries outlets. With a change in outlet location from lower order (N2 to N4; J3, J4) to higher order (N1, J1, J2) business areas there will be, on the average :

(i) a change in the incomes of the households of outlet customers to medium or high levels;

(ii) changes in the frequency distributions of customer trips by time and physical distance travelled; an increase in outlet average market area size, and in market area penetration over all distance zones but especially from the closest distance zones (<1 mile, <10 minutes); an increase in the total number of customers attracted to an outlet;

(iii) differentiation of the customer incomes and market areas of outlets in each upper order business area class;

(iv) greater variability in the market areas than in the customer household incomes of the outlets within each business area class;

(v) changes in other socio-economic characteristics of customer households besides income (labelled 4 in Fig. VII.4); low or medium outlet average persons/auto/customer household ratios; low or medium outlet average number of persons employed per customer household; low or medium outlet average customer household size; low or medium outlet number of juvenile dependents per customer household;

(vi) changes in customer modes of travel (labelled 3 in Fig. VII.4); an increase in the number and proportion of outlet customers travelling by car, by bus; a particularly large increase in the number and proportion of customers travelling by bus to and from the outlets in the C.R.A. and a decline in the proportion travelling there by car;

(vii) changes in the frequency of visit of customers; increase in the number and proportion of outlet customers who pay a visit once a week or less frequently;

(viii) changes in customer trip origins, destinations and purposes (labelled 5 in Fig. VII.4); increase in the number of other than home-home round trips by outlet customers, though these may comprise only a medium or low proportion of the total customer trips to an outlet; increase in the number of trips by male customers; a marked increase in the C.R.A. in the proportion of work-based customer trips to outlets; decrease in the proportion of customers of an outlet who are on other than home-home work trips and who are also within 1/4 mile of their residence; increase in the proportion of trips which are not single purpose, though a decline in the proportion of trips which are multiple shopping purpose only (Table 7.1);

(ix) changes in the competitive characteristics of outlet entrepreneurs (labelled 6 in Fig. VII.2); increasingly active oligopolistic behaviour; increased proportion of entrepreneurs fearing retaliation by competitors in upper order locations;

(x) changes in outlet price and non-price offers (labelled 7 in Fig. VII.4); lower outlet price levels; higher proportion of goods sold as 'specials'; decline in services provided except in upper income areas (as in the case of the J2 centre of Sandy Bay); greater expenditures on advertising; diversification of outlet range of goods;

(xi) increase in outlet scale (average weekly takings) owing to the increased demand for outlet goods and services which arise from the changes in the socio-economic characteristics and travel behaviour of outlet customers which are listed in (i) and (ii) above.

Table 7.5 shows that all these associations did appear to hold for Hobart's groceries outlets in 1964.[61] Fig. VII.4 therefore shows a pattern of strong, predictable linkages between outlet location by class of business area, demand and many other variables, which exist in the case of Hobart's groceries outlets. Fig. VII.4 shows how this complicated but orderly pattern comprises the overall interrelation of outlet location and customer demand which was described and interpreted in the first part of this chapter, and which helped account for the locational structure of groceries retailing in Hobart in 1964.

Conclusions from the Associations Revealed by the Data for Hobart's Groceries Outlets

The existence of the pattern of linkages in Fig. VII.4, at least in the case of Hobart's groceries outlets, gives further support to the first and main hypothesis of this work: "that the locations of the establishments of a retail trade become significantly interrelated in predictable ways with many other of their own characteristics (including the socio-economic characteristics and travel behaviour of their customers which influence the demand for their product)." In the case of Hobart's groceries outlets, the hypothesis can be used both to identify important variables which are interrelated with an existing pattern of retail location, and to identify the precise ways in which they affect this pattern.

In addition, the pattern of linkages of Fig.VII.4 gives support to the second hypothesis of this work: "that the locations and other characteristics of the outlets of a retail trade become significantly interrelated in predictable ways with each other's location and other characteristics in the process of competition for revenue". For the relations in Fig. VII.4, which have been verified in the case of Hobart's groceries outlets, can be used to show how changes in outlet location between different classes of business area as a means of competition over the middle-run will have predictable effects on operational, customer and customer trip characteristics of outlets, and thereby on the locational, operational, customer and customer trip characteristics of their major competitors. Fig.VII.4 also can be used to show how the converse holds: how changes in the locational, operational, customer, and customer trip characteristics of their major competitors will have predictable effects on the locations and other characteristics of outlets.

Unfortunately, it is not possible to go into the details of this last very complicated series of interactions between the locations and other characteristics of outlets in competition for revenue. But it is possible to note in conclusion the additional information which the interactions of outlet location and market area size give about the market structures which occur in Hobart's groceries trade. Chapter four revealed how the outlets of the higher order business areas (N1, J1, J2) compete in a distinctive highly competitive, oligopolistic, chained market of their own; entrepreneurs focus their attention especially upon the largest-scale outlets in the same business area or in the nearest business area of similar order (Fig. VII.3.(i)). This chapter shows how the entrepreneurs of the large-scale outlets exploit the advantages of their upper order location, in conjunction with aggressive competition through price, range of goods and advertising, to gain and maintain a greatly increased market area size, and a greatly increased market area penetration over all distance zones but especially in the distance zones of less than one mile away from the outlets (Fig. VII.1 and VII.2; Table 7.5).

Within the extensive trading areas of the largest scale groceries outlets in the higher order business areas lie the smaller market areas of the outlets of the lower order business areas. Chapter four showed how these outlets function in an overlapping and spatially linked array of imperfectly competitive groceries markets based on the hierarchy of shopping centres (Fig. IV.3.(ii)). With decrease in the status of the location of his shopping centre, a groceries outlet entrepreneur in a lower order business area becomes less competitive as he operates on an increasing spatial scale of market; this market extends to embrace at least one competitor in the nearest centre of successively higher orders. The aggressively competitive large-scale outlets in thenearest higher order centres are the major competitors in each of the local markets in which the outlets of lower order business areas function. This chapter shows how the entrepreneurs of the smaller-scale outlets of lower order business areas exploit whatever advantages are afforded by their class of location. They devise price and non-price offers which are particularly suited to the needs of customers from socio-economic groups which will be less accessible to upper order business areas. By doing this, they gain and retain restricted local market areas which generally average a radius of less than one mile or 10 minutes travel time (Tables 7.4, 7.5; Figs. VII.1, VII.2).[62]

But despite the attempts of the entrepreneurs of lower order business areas to segment the Hobart market by offering distinctive combinations of location, price, service and range of goods, the outlets obtain a much lower degree of market area penetration over all distance zones than the outlets of the higher order centres. Market area penetration is lowest of all for the outlets in the business areas at the bottom of the hierarchical scale (N4, J3). (Figs. VII.1, VII.2).[63] This probably reflects a situation where an increasingly extensive overlap of their market areas is faced by the entrepreneurs of successively lower order business areas. Major competitors in each successively higher order business area draw off some of the potential customers of outlets of lower order business areas, even from within their most intensive trading zones. The lowest market area penetration of all occurs for N4 outlets because their market areas may be overlapped by at least one competitor in the nearest business area of the middle order business area classes N3, N2, J3, as well as by the market areas of the one or more supermarkets in the nearest regional centres of class N1, J1, J2. On the other hand, outlets of the local shopping centres of class N2 have the highest market area penetration and average market area size of all lower order business areas, since their market area is overlapped only by the outlets in the nearest higher order centre of class N1, J1 or J2.

CONCLUSION

This chapter, centring on the relations of the locations of Hobart's groceries outlets and customer demand for their goods and services, has given considerable support to the two main hypotheses of this work, and has helped to account for the locational structure of groceries retailing in Hobart in 1964. The support given to the hypotheses, and the particular network of relations which connect groceries outlet location and demand in the Hobart case, lead finally to certain conclusions concerning the wider theoretical and empirical implications of the analysis.

Implications for Future Theoretical Studies of Retail Location

Firstly, the appearance in Hobart of the hypothesized strong, predictable interrelations of outlet location with both the socio-economic characteristics and the travel behaviour of their customers suggests that existing theories may be inadequate for the explanation and prediction of retail location. For there is no single body of theory which embraces the complex but orderly linkages between the many variables which have been found to influence the assessment by customers of the costs and advantages of shopping in alternative classes of business area, and which have been found to effect thereby the overall interrelation of outlet location and customer demand, at least in the case of Hobart's groceries outlets. This criticism applies equally to current price, competition, location and marketing theory and to many other theories which pay attention to only some of the aspects of the relations between the socio-economic characteristics of customers, customer travel, outlet market area size and penetration, and outlet location by class of business area.[64] Therefore, despite the great attention which has been paid in many fields to the relations between the location of the firm and the demand for its product, there may perhaps be a need for a new theory, whose explanation of retail location is oriented along the lines suggested by the two hypotheses of this work, which embraces and improves upon current theories, and which is applicable to retail outlets within urban areas.

Some more of the deficiencies of the principal body of retail location theory, central place theory, seem to be particularly clearly revealed. No version of the theory explicitly predicts the hypothesized and observed relations of outlet location and both the socio-economic characteristics and the travel behaviour of customers, which have been described in this chapter, which are summarised in Fig.VII.4, and which are important predictable causal associations of retail locations and other variables. This seems largely the result of the fact that certain assumptions are made, one or more of which appear in all versions of central place theory, and all of which do not coincide with the hypothesized and observed relations of location and demand for Hobart's groceries outlets.[65] Five of these possibly erroneous assumptions are :-

(i) that customers shop for a particular type of good from their nearest (absolute minimum travel costs) supplier on a single purpose round trip starting from and returning to the same base each time the good is required;[66]

(ii) that entrepreneurs in determining their locations regard their customers as being distributed in either a two-dimensional areal distribution by place of residence or in one-dimensional flows in the major intra-urban travel systems,[67] but not as possibly simultaneously located some at points (places of work), some in flows (in major intra-urban movement systems), some in two-dimensional distributions (spread out at their place of residence);

(iii) that every one of the outlets of a particular trade or business type has an identical range, that is, an identical spatial demand function for its product and a very similar market area size and penetration;[68]

(iv) that significant variations in outlet price and non-price offers will not effect significant differences between the outlets of a particular trade or business type in their ranges, market areas, or demand functions;

(v) that variations in outlet location, for example, from lower to higher order business areas, will neither affect nor be affected by any important systematic variation in the demand functions or market area sizes of the individual outlets of a particular trade or business type.[69]

The first assumption of minimum costs, single-purpose round trip customer travel seems most at variance with the results of the study of Hobart's groceries outlets. Instead of this form of travel, it seems that many factors might affect the assessment by customers of the relative costs and advantages of shopping at outlets in different classes of business area; these factors will lead to a variety of net profit maximising types of trip which will affect the demand for the retailer's product in different locations, and the retailer's location decision. Factors which seem to affect the relative costs of shopping in different classes of business area are: the incomes, leisure, and different travel modes of different households in the urban population; the spacing of upper as compared with lower order business areas; the greater general accessibility of upper order business areas to customers from within the metropolitan area, particularly when they form part of one of the major intra-urban travel systems; and the special accessibility of upper order business areas to customers for the purchase of recurrent and contemporaneously required combinations of goods and services. Factors which seem to affect the assessment by customers of the advantages of shopping in alternative locations are : the differing price and non-price offers of competing outlets in different locations; the price and/or non-price offers of the tertiary facilities in upper order business areas from which goods and/or services could be acquired at the same time as the groceries purchases; and the socio-economic characteristics of different households in the urban population.

In the case of Hobart's groceries outlets, it has been shown how the operation of all these factors might affect customer assessments of the net returns (advantages - costs) of travel to alternative locations, and how they might produce the distribution of retail groceries outlets between different classes of location.[70] The distribution of Hobart's groceries outlets appears to be related in an orderly and predictable way to highly significant variations

in the types of customer which groceries outlets attract, in the frequency distributions of the distances which outlet customers travel (outlet market area size and penetration), in the travel modes of outlet customers and their frequency of purchase, in the number and proportions of outlet customers on other than home-home round trips, in the number and proportion of outlet customers who are on other than single-purpose trips, and in outlet price and non-price offer combinations. These findings serve not only to throw doubt on the assumption of single-purpose, round-trip, costs-minimising travel of central place theory, but also on the other assumptions listed under (ii) to (v) above.

There are yet two further assumptions which are common to all versions of central place theory, and which are at variance with the results of the study of Hobart's groceries outlets. These are:

(i) that the grouping of outlets into particular business types does not emerge as a result of the adjustment by the entrepreneurs of a particular trade of their outlet operational, customer and customer trip characteristics, as location is used jointly with outlet price and non-price offers in the process of competition for revenue;[71]

(ii) that each outlet of a trade or business type has an exclusive "threshold" trader area, embracing all the customers in an area closest to it which competing outlets of the same or any other business area type cannot penetrate.[72]

The second of these two assumptions may be a particularly dubious one, given the extensive degree of market area overlap which was found to exist for Hobart's groceries outlets. The trading areas of the largest-scale outlets of the highest order business areas encompassed the smaller ones of the outlets in lower order centres; in addition, the outlets of each order of centre drew at least some customer from within all points of the market area of competing outlets in each lower order business area.

This pattern seems to support, not the central place notion that the outlets which provide a particular type of retail goods supply an exclusive local market and minimise the single-purpose trip costs of their customers, but the position outlined in Chapter two of the organisation of the outlets of a trade into regional markets.[73] The regional markets surround the largest-scale outlets of the highest order centres; within the markets customers circulate for the purchase of a particular type of good (e.g. groceries), and make use of centres in both higher and lower order business areas as the combination of purchases on their shopping trip or other factors require. This pattern of circulation creates a series of overlapping outlet trade areas, and of overlapping local markets of 4-5 competitors both of which are linked with the hierarchy of shopping centres (Fig. IV.3).

But if central place theory does not seem to correctly account for the effects of customer travel patterns when making explicit locational predictions, still less do other theories which are applicable to the study of retail location. Price theory, for example,[74] does not make explicit the ways in which location may be used over the middle-run, in conjunction with price and non-price offers, as a means of competition which alters the travel behaviour and socio-economic characteristics of a retail firm's customers, and thereby the demand for the firm's product.[75]

The theory of urban land rent and land use seems to have important gaps too when applied to the question of retail location.[76] In the theory, the retailers of a particular trade are seen as complying in their choice of location to a general pattern of intra-urban site accessibilities. The level or accessibility of a site declines directly with distances from the C.R.A., and the demand for an outlet's 'product' declines in an identical manner for all the outlets of a particular trade with distance from the C.R.A. The study of Hobart's groceries outlets (Fig. VII.4) suggests that it is not 'distance of customers from the central node' which counts, but many other aspects of the spatial distribution of activities within the city: the relative distances of upper and lower income customers from higher and lower order business areas; the position of upper order nodes by major auto traffic routes and major public transport routes, along which flow the major intra-urban movement systems; and the particular combinations of other land uses which develop at these nodes. In addition, retail entrepreneurs have a much greater degree of control over their market areas and thus over their shorter- and longer-run locations than is suggested in the theory. Not only may they control their market area by choice of site, but also by the great variety of price and non-price offers combinations which entrepreneurs can offer during competition in markets of varying degrees of imperfection.

Lastly, it may be remarked that the hypothesized and observed interrelations of demand and location seem to point again to the need for a dynamic theory of retail location. For they imply that a systematic sequence exists of spatial and temporal changes in outlet location, in outlet customer and customer trip characteristics, and in the demand for outlet products, and in outlet scale, outlet competitive characteristics and outlet price and non-price offers (Fig. VII.4). Then, too, the hypothesized and observed pattern of relations is dependent upon the current state of certain exogenous variables, namely, the current distribution of wealth within the urban community, the modes of transport available, and the nature of intra-urban travel systems. Ideally, a long-run dynamic model seems to be necessary to predict the different patterns of the relations of location and demand which will occur in different middle-run periods following changes in the exogenous variables.

Implications for Future Empirical Studies of Retail Location

The relations which have been hypothesized and observed in the case of Hobart's groceries outlets have wider empirical as well wider theoretical implications. They can be used to make suggestions concerning trends in, and plans for retailing in Western cities in general and Australian cities in particular.[77]

Further suggestions can be made concerning the recent decline, but not the disappearance, in many cities of the smaller corner convenience goods store and of the local convenience goods shopping centre, and the rise in importance of the regional shopping centre, with very large retail convenience goods units as its key tenants.[78] These trends reflect a change in outlet location from lower order to higher order shopping centres within many trades. The relations of Fig. VII.4 suggest that, for any convenience goods trade in a Western city, ~~apparent~~ current changes in the location and scale of its retail establishments may be connected, fistly, with both the general increase in the wealth of the urban community and with the disparities

in the distribution of urban households by their income and thus by their other socio-economic characteristics. The high and slowly rising proportion of the community in the middle and upper income brackets can afford to travel to, and will greatly increase the demand for the goods of, a few units in widely spaced locations in upper order business areas. However, the presence of lower income groups, of large-size households, and of households with a large number of juvenile dependents maintains a demand for the 'products' of a large number of smaller-scale units in the many closely-spaced lower order business areas.

Secondly, changes in the location and scale of convenience goods establishments may be connected with both the current availability of foot, car and public transport as alternative modes of travel, and with the differences in the availability of each of these modes of travel to different socio-economic groups.[79] The ease with which medium-higher income and/or smaller households substitute bus or car travel over long distances to reach upper order business areas may help to generate a particularly high demand for the goods and services of a few outlets in these upper order locations. On the other hand, a range of smaller units in lower order business areas may still be required by lower income, less mobile households.

Finally, the changes in location and scale of the outlets of a convenience goods trade may be connected with the development of the major intra-urban persons movement systems of the mobile, sprawling metropolitan community, which are channelled along routes near upper order business areas. Although customers on other than home-home trips may only form a small proportion of the total number of customers to upper order business areas, the increment in demand which they represent may still be no mean addition to the revenue of units in upper order locations. However, the nature of intra-urban travel systems may also be a factor preserving outlets in lower order locations. The desire by many persons on non-home-home shopping trips in the flow of the intra-urban systems of movement to stop off and shop as close to home as possible may be a major factor leading to the preservation of smaller scale outlets in lower order business areas. (Table 7.5).

The relations which are shown in Fig. VII.5 and Table 7.5 and which have been described in this chapter also help to suggest the precise ways in which the current intra-urban movement systems, the current transport modes, and the current distribution of wealth within the community will affect the current changes in size and location of outlets of convenience goods trades. In particular, Figs. VII.1, VII.2 and VII.4 and Table 7.5 suggest how - given the current incomes, transportation modes and travel systems of the urban population - the few upper order business areas will be the most favourable retail locations, because of the greatly increased average market area size and penetration and the greatly increased scale and profits which at least some entrepreneurs might obtain there. In comparison with entrepreneurs in lower order business areas, entrepreneurs in upper order business areas may attract higher proportions and numbers of customers who come from the further distance zones away from their outlet; who travel by bus or car; who have medium or high rather than medium or low incomes. In addition, the general and special accessibility of locations in upper order business areas may permit the attraction of greater numbers of customers on other than home-home trips, and on multiple purpose trips, from places of origin

in all distance zones away from the outlets. Finally, the lower prices, the increased range of goods and the lavish advertising provided by entrepreneurs in upper order business areas may permit both further increases in market area size and penetration and may themselves be permitted by the increases in scale which are yielded by increasing market area size and penetration, and by the need for increasingly aggressive competitive behaviour by the entrepreneurs of larger-scale outlets.

The increases in market area size and penetration which may occur for the large outlets of a convenience goods trade in upper order business areas seems to lead to the increasing overlap of the market areas of the smaller outlets in lower order business areas. However, the market areas of many smaller outlets may be preserved by the appeal of their convenience and of their carefully devised price and non-price offers to special types of household within the metropolitan area. The smaller units of lower order business areas may also be preserved by the imperfections of the local markets in which they occur.[80]

The relations of Fig. VII.4 and the information in Table 7.5 not only suggest what may be the causes but also what may be some of the effects of the changes in the locations of the outlets of a convenience goods trade from lower to higher order business areas. Especially, there may be changes in the shopping travel patterns of customers in each of the markets surrounding major regional centres and the C.R.A.[81] There may be an increasing total number of trips made to outlets in higher order centres than to outlets in lower order centres, especially by medium and high income customers. An increasing number and proportion of these trips may be from further distances, by bus and car, by customers on other than home-home round trips for shopping, and by customers on multiple purpose trips. There may also be an increasing differentiation of the particular types of household which use the outlets in each upper order and lower order business area class, of household travel patterns, and of outlet price and non-price offer combinations. A range of outlets may emerge within a convenience goods trade, with different scales, different costs structures, different competitive characteristics, and different price and non-price offer combinations, to supply the needs of households of different socio-economic types and with different travel behaviour.

It may be remarked in conclusion that the complicated interactions within the Hobart groceries trade of outlet location on the one hand, and the socio-economic characteristics and travel behaviour of their customers on the other - these interactions suggest that no fixed standards can be used by public or private planning agencies to determine either the 'optimal' location of retail outlets within a metropolitan area, or the 'optimal' facilities for parking and transportation for retail purposes. Where planning is involved for the outlets of a convenience goods trade, a range of different outlet scales, modes of operation and types of location, and a range of transportation and parking facilities may need to be investigated, if it is desired to cater for the needs of different population groups in different parts of the metropolitan area. Different locations of the outlets of even a single retail trade may have complicated but not unpredictable effects on the socio-economic characteristics and travel behaviour of outlet customers and outlet operational characteristics. Planning for transportation facilities, which alters intra-urban movement systems and the accessibilities of lower and higher order

business areas, and the availability of different types of travel mode, may also have complicated though discoverable effects on the shopping travel behaviour of different socio-economic groups, and thus on the locations and operations of the outlets of a retail trade.

The study of Hobart's groceries outlets therefore seems to confirm the generally-held belief of planners that research is needed into the nature of the interactions between land use and traffic.[82] But the study of Hobart's groceries outlets also seems to reveal that there possibly needs to be a greater appreciation of the complexity of land use and traffic interactions within each of the categories of even a very fine land use classification, for example, even within each of the trades of the broad retail land use type.

1 The demand by customers for the 'product' of a retail outlet is the quantity of the outlet's tied bundle of goods and services which is required by customers per unit time period (after Chamberlin, 1962 edn., 56-70).

2 See the definitions of short- and middle-run outlet location with respect to customers, pp. 17, 30, 31.

3 e.g. Smith (1948); and Chamberlin (1962 edn), though see Appendices C and D, where Chamberlin explicitly looks into the impact of simple least-distance consumer travel on competing outlet demand functions. The way in which the demand functions of outlets supplying differentiated products are regarded in economic theory is an outgrowth of the way in which the demand functions of outlets supplying homogenous products are regarded in traditional price theory (e.g. Ryan, 1962, 1-40, 104-137). Baumol and Ide (1956), Lewis (1945) and Holdren (1960) are among the few economists who explore the impact of consumer travel patterns on outlet demand functions.

4 e.g. Christaller (1933); Lösch (1954); Berry and Pred (1965); Beckmann (1968); Bunge (1962); von Boventer (1966); Mills and Lay (1964); Hotelling (1929); Lerner and Singer (1937); Ackley (1942); Devetoglou (1965); Lashkamenan and Hanson (1965).

5 e.g. Applebaum (1961, 1965); Cohen (n.d., 1961); Applebaum and Cohen (1960, 1961, 1961-A); Kane (1967); Imus (1961); Ransome (1961); Nelson (1958).

6 e.g. Huff (1960, 1966); Nystuen (1959-A-B); Jonassen (1955); Wilbur Smith and Associates (1965); Bucklin (1966).

7 e.g. Bass et al (1961); Cox, Alderson and Shapiro (1964); Cole (1955); McNair and Hansen (1956).

8 It will be remembered from Chapter 3 that, in Hobart, data could be collected from and about the customers of only 40 of the 91 outlets whose entrepreneurs provided information concerning their scale, competitive and costs characteristics, and their price and non-price offers. Consequently, the demand for outlet goods and services could be studied for small samples of the outlets in each class and type of business area only; no additional samples of outlets from each regional market could be included. In this Chapter, the study of the relations of customer demand and groceries outlet location by class of business area only is sufficient to test the hypothesized general interrelations of outlet location and customer demand. However, it is regrettable that there could not be the same more extensive and detailed analysis like that of the preceding Chapters, where an examination was made of the interrelations of outlet location by both class of business area and regional market with outlet scale, outlet competitive characteristics, outlet costs and efficiency characteristics and outlet price and non-price offers.

9 The <u>average market area size</u> of an outlet is given by the distance at which a significant break occurs in the frequency distribution of customer trips by distance from their place of origin (for examples, see Figures VII.1 and VII.2). <u>The maximum market area size</u> of an outlet is given by the maximum customer trip distance which occurs in the frequency distribution. <u>Market area penetration</u> is the number of customer trips which are attracted from places of origin within any given distance zone from the outlet (e.g. the number of trips from places of origin within $\frac{1}{2}$

mile of the outlet), relative to the number of trips attracted by other outlets from the same distance zone about them. An outlet has a greater market area penetration than another within a particular distance zone if it attracts a larger number of customer trips from that zone. An outlet has a greater market area penetration overall than another if it attracts a larger number of customer trips from a majority of the distance zones from which customers travel to the outlets.

The average and maximum market area sizes and the market area penetration of an outlet will vary with the time period under consideration. Over the very short-run period; while an outlet is located at the same site in a particular class of business area, daily, weekly, and monthly changes in outlet price and non-price offers and other variables (e.g. customer places of origin) will cause daily, weekly and monthly changes in the frequency distribution of customer trips by distance from their place of origin. This will produce a series of daily, weekly and monthly outlet average and maximum market area sizes and degrees of outlet market area penetration.

However, over a somewhat lengthier period than the very short-run, but while the outlet remains at the same site, any of the series of daily, weekly and monthly variations in maximum and minimum market area sizes and in degrees of market area penetration may be envisaged as approximations of one of three norms of average and maximum market area size and degree of market area penetration, which are typical of the outlets in its given location. These three market area norms are defined conceptually by the frequency distribution by distance travelled of the total number of customer trips to the outlet over the lengthier time period; this last frequency distribution is conceived as the population of customer trips from which all the various customer trip - distance frequency distributions for the very short daily, weekly and monthly time periods are samples.

The idea of mean and maximum market areas ("fields") was derived from Haggett (1965, 40-41). The idea of market area penetration was derived from marketing literature (Berry, 1967, 127). In both cases, the ideas have been redefined to provide operational concepts for the purposes of this study.

10 c.f. Prais and Houtthakker (1955); see also Chapter four, pp. 265ff.

11 e.g. Nelson (1958); Economic Geography, 34: 1, 1961.

12 Each outlet of the 40 in the second phase sample which was drawn from Hobart's groceries outlets to study the relations of outlet location and consumer demand.

13 pp. 188 - 191.

14 Only the major deficiencies of the estimates of outlet customer and customer trip characteristics need to be mentioned here. The ways in which the estimates were made of the customer characteristics of the 40 sampled outlets, and the ways in which the estimates for the sampled outlets were used in turn to make estimates of the same customer characteristics for all the groceries outlets in Hobart in 1964, have already been described and assessed in Chapter three and Appendices 11 and 12.

The ways in which the estimates were made of the customer trip characteristics of each sampled outlet, and then of the same customer trip characteristics for all Hobart's groceries outlets, have also been described and assessed in Chapter three and Appendices 10 and 14.

15 The low penetration within these zones probably occurs because these zones for a C.R.A. outlet lie within the boundaries of the Hobart C.R.A., and contain mainly workplaces far enough away for employee - customers to be unwilling to walk to an outlet. On the other hand, the 1½ mile and 0-5 minute distance zones over 6 contain workplaces close by the outlet. And the 1 mile and ~~76~~ minute zones include mainly customers at or beyond the margins of the C.R.A. from which customers appear willing to travel using modes other than walking. The outlets of the C.R.A. have the highest %'s of their customers from further than a mile and six minutes away from the outlets of any class of business area.

16 Every business area class has low to moderate coefficients of variation (30) of individual outlet values for customer socio-economic characteristics (Statistical Appendix 6 - Tables 6.1 to 6.3). But every business area class has moderately high or very high coefficients of variation of the proportions of outlet customers in each distance - travelled class of customer trip frequency distributions (Statistical Appendix 7 - Tables 7.1 and 7.2).

17 It may be remarked that these findings, which are based on information derived from customer interviews, are in accord with findings in previous chapters, which are based on information derived from entrepreneur interviews. From the customer interviews, it seems that a considerable degree of variability in outlet demand may exist for the outlets of any business area class, despite the homogeneous socio-economic characteristics of their customers. From the entrepreneur interviews, a considerable variability appears in the scale and costs and efficiency characteristics of the outlets within a given class of business area, (which is consistent with variability in demand), even though the outlets operate in fairly homogenous local market structures, and even though their price and non-price offer combinations are relatively homogeneous (which is consistent with homogeneity in customer socio-economic characteristics).

18 The conclusion remains valid that there is no real difference in customer demand for the 'products' of the outlets in N and J business area types, despite the fact that two of the five indicators of demand do show statistically significant relations with outlet location by class of business area, for all groceries outlets together, and for two out of three business types separately. The per capita annual household incomes of outlet customers are significantly lower, and customer household members are significantly older, for outlets in J rather than N centres (Table 7.2). However, the statistically significant differences in these two cases seem purely the result of the mathematical process of amalgamating the high, medium or low values for the outlets of each of the four N and J business area classes. Only the outlets of class J4, and not of classes J1 - J3, have average customer household incomes which are low and also households with older age structures (Table 7.3); consequently, it is difficult to see how the different patterns of variation in customer household incomes and age structures within the J hierarchy could produce really significant general differences between N and J outlets in customer demand for their goods and services.

19 eg. pp. 224 - 226.

20 see Chapters 4, 5, 6.

21 see Chapters 4, 5, 6.

22 Supermarkets have very much the highest aggregate customer demand for their goods and services for they have very much the greatest mean sizes of market area (3 - 6 miles, 12.5 - 15 minutes radius), and very much the greatest market area penetration over all the time and physical distance zones from which customers travel (Figure VII.2; Table 7.4). Penetration within the 0-5 mile distance zone and the 0-30 minute travel time zone is particularly high. This is so even if allowance is made for the fact that, because all supermarket interviews were conducted on the Friday peak shopping day, estimated mean numbers of supermarket customers on a weekday coming from within these two zones may be inflated in comparison with estimates for groceries and general stores. Because of their great market area, size and high degree of market area penetration, supermarkets will have the highest demand for their goods and services, even though their customers come from households which are relatively small and have low per capita incomes in comparison with the larger and/or higher income households served by other types of outlet (Table 7.4).

Groceries have a lower aggregate consumer demand for their goods and services than supermarkets, but a higher aggregate demand than general stores. Their market area size is larger than that of general stores (1.25 - 2.4 miles, 7.5 - 15 minute radius). Their market area penetration is also greater overall distance zones than that of general stores. (Table 7.4; Figure VII.2). In addition, although groceries store customers from the smallest sizes of household, their customer households have the highest per capita incomes of the households using outlets of any business type (Table 7.4).

General Stores have the lowest aggregate customer demand for their goods and services. They have a very small average market area size (.5 - 1.5 miles, 7.5 - 11 minutes). They also have a very low market area penetration within all distance zones, except within the 0 - 3 minute and 0 - $\frac{1}{8}$ mile zones from which they obtain over 40% of their customers. (Table 7.4; Figure VII.2). They supply customers from large households and households with low per capita incomes (Table 7.4).

23 See also Chapters 4, 5, 6.

24 See Footnotes 3, 4, and 5 above.

25 (1962 edn., 56 - 176). The following text is a paraphrase of arguments in these chapters to bring out their implications for the study of retail location.

26 The following text is a paraphrase of the contents of many studies in marketing geography e.g. those contained in the special issue of Economic Geography on marketing geography, 34:1, 1961. See also Applebaum and Cohen (1961, 1961-A).

27 It will be remembered from Chapter 3 that the changes that are to be described are envisaged as occurring firstly, spatially and secondly, temporally (pp.48-9). A pattern of association between location and other variables has been revealed by the data for a 1964 cross-section of Hobart's groceries outlets. This may be interpreted as a pattern of spatial cause and effect; it may also be interpreted as an analagous pattern of temporal cause and effect - that is, as a pattern of relations between the variables which is stable over a current middle-run period - by making the normal assumptions which lie behind cross-sectional analysis (pp.198-9). Consequently, the sequence of change described here may first be envisaged as a sequence of spatial change and secondly as a sequence of temporal change.

The changes refer to the general changes which will occur on the average for the group of retail outlets comprising the groceries trade in Hobart, not necessarily to the changes which will occur for any particular outlet (c.f. Chapter I, pp. 34). The description of the changes is therefore a generalisation about conditions in the Hobart groceries trade as a whole, made on the basis of observations for the trade as a whole.

The fact that the description is a generalisation affects the meaning of the words "change in location." Temporal changes in groceries outlet location for the trade as a whole are regarded as changes in the proportion of outlets in the different classes of location, namely, in the different classes and types of business area, and in the different regional markets. These temporal changes in proportions will normally occur if some existing outlets go out of business, and/or some new entrants appear, and/or if some existing outlets change their location to a new locational class. A temporal change in groceries outlet location between locational classes, for example from lower order to higher order business areas, does not mean that each particular groceries outlet currently in lower order business areas migrates to higher order ones, only that an increase occurs in the proportion of outlets in the upper order locations. On the other hand, spatial changes in location for the trade as a whole refer to the changes from all those outlets in the trade which are currently in a particular locational class to those outlets of each other locational class; for example, a change from the outlets in lower order business areas to the outlets of higher order business areas in Hobart in 1964 constitutes a spatial change in groceries outlet location within the group of outlets comprising the Hobart groceries trade.

Similarly, temporal changes in other variables mean the changes in the variables 'on the average' over time for the trade. They will not be effected by each and every outlet making the same adjustment simultaneously in a variable. They may be effected by only some outlets making the sorts of adjustment necessary to produce a change 'on the average' for the trade. Also, spatial changes in other variables mean the general sort of change in the variables between the outlets of different specified locational classes in Hobart in 1964. Spatial increases in scale, for example, are the general increases in outlet scale between lower and higher order business areas and between inner and outer suburban markets.

In cross-sectional analysis, a pattern of spatial change in the variables is assumed to reflect a pattern of temporal change in the same variables which is stable over the current middle-run period. For example, spatial increase in outlet scale between lower and higher order business areas is assumed to reflect a pattern of temporal increase in scale and profits between business area classes which is constant over the middle run. As a result, spatial cause and effect relations - that is, cause and effect relations which hold over space at a given time - are identified as well as the more usual temporal cause and effect relations. For example, in 1964, spatial changes in outlet scale and profits are said to be the cause of given numbers of groceries outlets being in higher order business area classes instead of among the outlets of lower order business area classes. That is, spatial changes in scale in Hobart in 1964 are said to be the cause of the spatial differences in outlet location between lower order and higher order business area classes in 1964.

28 c.f. pp. 428-430.

29 Simmons (1964).

30 The change in market area penetration will be a reflection of a change in the number of customers which are attracted to outlets from trip origins at all distances away from an outlet. The change in average market area size will be a reflection of a change in the distance at which a break occurs in the frequency distribution of customer trips by distance from their place of origin.

31 pp. 27, 30.

32 Simmons (1964).

33 pp. 224-226, 242, 295-296, 370, 386.

34 pp. 160-163.

35 pp. 200 ff.

36 e.g. Huff (1960, 1966); Nysteun (1959 - A - B); Jonassen (1955); Wilbur Smith and Associates (1965); Voorhees and Stegmaier (1959); Baumol and Ide (1956); Nelson (1958); Berry, Barnum and Tennant (1962); Murdie (1965).

37 Huff's article (1960) comes closest to embracing all the variables which have been included for the study of consumer use of Hobart's groceries outlets. However, as far as this author is aware, no writer has tried to suggest how each different variable might influence customer travel and the demand for outlet goods and services in different centres or the ways in which the complex customer travel patterns become interrelated with retail outlet location.

38 Expenditures in time and money appear to be the two main "costs" of travel to shoppers; other costs, for example, expenditures in effort, appear of less importance. The intractable problem of how one can evaluate in practice the total costs to the customer of time and money spent need not be of much concern here, since the notions are used only to provide a conceptual framework for a discussion which tries to unite the ideas in many studies of the factors which influence customer travel behaviour. There is no question here of assessing the actual costs to customers in an actual case; it seems sufficient that the influence of such costs on travel behaviour in the case of Hobart's groceries outlets be deduced from data showing regularities in time and physical distances travelled, which can reasonably be expected to arise from regularities in travel costs assessments. The assumption in what follows of a strong, positive linear relation of time and money travel costs with physical or time distance travelled is very often made elsewhere to provide a necessary simplification of a possibly much more complex relation to enable any analysis at all to be made.

39 e.g. Duncan and Reiss (1956); Quinn (1955); Smith and Associates (1965); Vernon et alia (1965); Karmel and Brunt (1963, 44).

40 e.g. Duncan and Reiss (1956); Quinn (1955); Vernon et alia (1965).

41 This statement presupposes the existence of a simple linear or curvilinear location demand function for the multiproduct outlets of a given trade. The function is envisaged as an artificial simplifying concept used for purposes of analysis, analogous to the trade costs function described in Chapter five (FN 6).

42 For the definition of a primary effect, see p. 200.

43 This is an application of arguments which are widely accepted in urban land rent - land accessibility - land use theory (e.g. Doreau and Hinman, 1928; Haig, 1926; Ratcliff, 1949; Weimar and Hoyt, 1954; Turvey, 1957; Brown, 1965; Alonso, 1960, 1964).

The generalisations are clearly rather shaky in the case of retail land use, since they ignore the fact that, while the use of a particular regional centre will in general involve lower aggregate and average travel costs to all the customers within the metropolitan area than will a particular lower order business area, the costs of travel to their nearest competing outlet in their nearest lower or higher order business area (which will be a different business area for different customers) will be lowest of all. If this fact is taken into account, however, it is very difficult to say anything about the relative numbers of metropolitan area customers going to higher or lower order business areas at all; that is, it is very difficult to use urban land-use land - rent theory to account for retail land use patterns. The difficulty seems to stem from the central assumptions in land rent theory that entrepreneurs will desire to serve as many customers as possible from all over the metropolitan area to maximise profits, and that they will themselves pay distribution costs, so that locations which are of a high degree of general accessibility to all the metropolitan area are the most desirable. In the case of retailing, these two assumptions clearly do not apply (c.f. Nystuen, 1959-A).

44 A business area's walking distance zone is bounded by the distance at which customers' estimated time costs on walking become equal to their estimated time and money costs for an alternative mode of travel to the business area; it is believed that the walking distance zone for shoppers in urban areas extends for only about $\frac{1}{4}$ - $\frac{1}{2}$ mile beyond the boundaries of a shopping centre.

45 The zone served by public transport routes is bounded at a distance away from routes beyond which customers' assessed walking and waiting time costs, plus the time and money costs of bus travel become greater than the assessed total time and money costs of travel by car or taxi to and from major trip bases.

46 c.f. McClelland (1963); Charvat (1961).

47 The precise increase in customer incomes and in market area size and penetration which will be obtained with changes in outlet location from lower order to higher order business areas will clearly depend upon the particular upper order business area class towards which the locational changes are predominantly made, or, more precisely, upon the demographic characteristics of the population surrounding the shopping centres of this particular business area class. If the centres of the particular upper order business area class are mostly located among concentrations of customers from medium high to very high income households, it will be expected that the greatest increases in outlet customer incomes and in outlet average market area size and penetration will occur. Alternatively, if members of the upper order business area class are predominantly located in the middle of medium-low to low income suburbs, or if they possess traffic congestion or parking problems (e.g. the C.R.A.), it will be expected that the least increase will occur in outlet customer incomes and outlet average market area size and penetration.

48 The terms "general accessibility"(nearness to all customers in the metropolitan area) and "special accessibility" (nearness to customers because of a store's proximity to other establishments which they use in conjunction with it) were first coined by Turvey (1957).

49 A system of movement is defined in Note b of Figure VII.2; the term was first defined by Mitchell and Rapkin (1954), who describe the main types of intra-urban movement systems.

50 Trip bases are defined in Table 7.1.

51 The different possible dimensions of the spatial distributions of the customers for tertiary goods and services have been pointed out by Bunge (1962).

52 c.f. Melbourne Metropolitan Board of Works (1954); Adelaide Town Planning Committee (1962); Wilbur Smith and Associates (1965); Figure II. 14.(i); Philadelphia City Planning Commission (1960); Foley (1961 - 62).

53 Wilbur Smith and Associates (1965).

54 Under these conditions too, outlets in lower order business areas might attract a relatively higher number of non home-home trips than expected, by attracting a higher number of dual-base trips with a home base near the lower order business area location. If the other non-home base is the place of origin of the trip, this might be at a considerable distance from the outlet, especially if it is a recreational or work base, since people move long distances for these purposes (Wilbur Smith and Associates, 1965). For this reason, the maximum market area size of outlets of lower order business areas (given by the distances travelled by the odd customers on dual base trips with home as their destination) might not be very different from the maximum market area size of outlets in upper order business areas (given by the distances travelled by the greater number of customers on dual base trips).

55 e.g. Nyshen (1959).

56 For definitions of single-purpose trips, and of the different types of trip which are not single purpose, see Table 7.1.

57 The fact that upper order business areas are normally the only ones to have large numbers of non-retail tertiary goods and services will especially lead to increased outlet market area size and penetration, through the attraction of an increased proportion and number of customers on other than single purpose trips and multiple shopping purpose trips.

58 Prices of goods at the outlets plus the customer's assessed total time and money travel costs to obtain them.

59 See Chapters 4, 6 (price and non-price offers related to customer characteristics)

60 ~~See Chapters 4, 6.~~ cf. p 450.

61 Additional evidence of the suggested changes in the frequency distributions of customer trips by distance travelled is contained in Figures VII.1 and VII.2. Evidence of the greater variability in the travel behaviour of outlet customers than in their socio-economic characteristics ((iv) above) is provided by the coefficients of variation in the detailed Tables of Statistical Appendices 6 and 7; there was no room for it in Table 7.5.

62 For example, the outlets in the second highest order business area class, the moderately accessible local shopping centres of class N2, attract customers from within a 1 to 1½ miles and 10 to 12 minute radius (Figures VII.1, VII.2), by offering a high level of service and a wide variety of services in conjunction with not greatly increased prices on a restricted range of goods (Tables 7.5, 6.8). These outlets seem to have a peculiar attraction for customers from households with high incomes, but with their mobility restricted by moderately large and youthful families (Table 7.3).

63 The outlets of business area class J4 are anomalous in that they lay in Hobart very close to major work-places, schools and recreational areas, and therefore had a very large number of customers coming from within ¾ mile and 6 minutes.

64 See theoretical literature cited in Footnotes 3, 4, 5, 6, and 7 of this chapter.

65 This is true even though Berry, in his latest summary of the theory, recognises the important effects of different combinations of outlet price and non-price offers, of intra-urban movement systems, and of multiple-purpose shopping on the market areas of retail outlets (1967, 85-86). However, central place theory is still far from being a coherent statement of the ways in which these variables operate to produce retail location patterns (c.f. Sternlieb, 1968). Also, there is no recognition in theory of the ways in which the preferences of different types of household in different locations may affect retail outlet market areas and locations.

66 The assumption of single-purpose round trips was relaxed by Bunge (1962), but he retains the minimum travel costs assumptions.

67 The earliest writers (e.g. Christaller (1933); Losch (1954)) assumed two-dimensional distributions for all outlets of all trades. Berry (1959) pointed out that for some trades ("highway oriented" trades) a uni-dimensional distribution should be assumed. Bunge (1962) is the first writer to explore the possibility of 0, 1 and 2 dimensional distributions as appropriate for different trades.

68 c.f. Berry (1959); Christaller (1933); Nourse (1968); Losch (1944); McCarty and Lindberg (1966).

69 Berry has remarked that variations in outlet price and non-price offers will simply cause unimportant "blurring" of the standard size of market area which is gained by each of the outlets of an individual trade or business type in any location (Berry and Pred, 1965, 7). But in Geography of Market Centres and Retail Distribution (1967, 85-86), Berry notes that systematic variations will occur in market area sizes owing to systematic variations in the prices and ranges of goods in outlets in upper and lower order business areas. Yet he still does not take into account in theory the ways in which these covariations in price and non-price offers and market area sizes might influence the decisions of entrepreneurs to locate in higher or lower order centres, or how they might thus influence the locational structure of retailing.

70 This study thus supports the work of those who consider maximisation of net returns rather than minimisation of travel costs as the main principle of customer choice of shopping place, and one of the main forces behind retail location (e.g. Nystuen, 1959-A, 1959-B).

71 c.f. pp. 431-432.

72 c.f. pp. 455-456.

73 p.110.

74 e.g. Chamberlin (1962 edn.).

75 Indeed, nowhere is explicit account taken of the locational structure of retailing, even where it has important implications for the allocation of resources in tertiary industries. For example, in connection with the question of productivity and physical and economic efficiency in retailing, the question is nowhere discussed how the distribution of households by income, size and age structure within major metropolitan communities may affect the range of retail locations, prices, advertising expenditures and services which customers will require, and thus the number of distribution points that will arise in each retail trade, and their relative sizes and efficiency. Yet Table 7.5, Figure VII.4 and the discussion of Hobart's groceries outlets seem to show the importance of these questions.

76 See literature cited in Footnote 43.

77 For a justification of these statements, see
Of course generalisations derived from the case study of Hobart's groceries outlets cannot be accepted as valid before further testing of the two hypotheses of this work is carried out for other trades and other cities.

78 See literature cited Footnote 106, Chapter 4.

79 It is widely recognised that high and rising personal incomes and high and rising car ownership rates are in great measure responsible for the increases in outlet scale and the changes in outlet location. But this study seems to show that variability in incomes etc., within the urban area may also be an important factor.

80 cf. pp. 455-456.

81 ie the upper order business areas.

CHAPTER 8 CONCLUSIONS

SYNOPSIS

MAIN CHAPTER HEADINGS

Assessment of the Tests of the Hypotheses.

Contributions to the Future Study of Retail Location (1) : The Future Development of Theory; Need for an Integrated Theory (Deficiencies of central place theory); Other Possible Requirements of an Improved Theory.

Contributions to the Future Study of Retail Location (2) : Future Empirical Work, Including Planning; Suggestions for the Study of Current Trends in Retail Location in Western Cities; Other Topics for Empirical Research; Suggestions for Planning.

Contributions to the Future Study of Retail Location (3) : The Application of Statistical Methods.

In this chapter, the results are drawn together of the attempt to describe and account for the locations of Hobart's groceries outlets. Firstly, a final assessment is made of the tests of two hypotheses which were framed in this work to assist in the explanation of the locations of retail establishments. Secondly, the implications are suggested of the results of these tests for future theoretical and empirical studies of retail location, and for planning for retail establishments.

Assessment of the Tests of the Hypotheses

At the outset of this work two hypotheses were framed. They were shown, firstly, to provide a much-needed integration of diverse ideas in many fields about the factors influencing retail location, and secondly, to comprise general highly simplified propositions which might be used at any scale to help explain, predict, and plan for the locations of the establishments of a retail trade. The first and main hypothesis was: "The locations of the establishments of a retail trade become significantly interrelated in predictable ways with many other of their own characteristics, namely their scale (output and space occupied), their costs structure and efficiency, their price and non-price offers, and the demand by consumers for their product, as indicated by the socio-economic characteristics of their customers, and by the distances which their customers are willing to travel to make their purchases." The second and less important hypothesis was: "The locations and other characteristics of the establishments of a retail trade become significantly interrelated in predictable ways with each other's locations and other characteristics in the process of competition for revenue."

Over the last four chapters, these two hypotheses have been tested using data for the locational, operational, competitive, customer and customer trip characteristics of Hobart's groceries outlets. Attention has been focussed in succession on the hypothesized strong, close, two way predictable relations of location with (i) scale, (ii) costs and efficiency, (iii) price and non-price offers and (iv) customer demand. Despite the deficiencies of the techniques which were used to test the hypotheses, it has been concluded that the two hypotheses are consistent with the facts in the case of Hobart's groceries outlets and are therefore useful for the study of retail location. The hypotheses have enabled the identification of the important variables which are associated with the observed pattern of groceries outlet location in Hobart, and also the precise cause and effect relations between these variables and groceries outlet location. The two hypotheses have permitted the identification of a pattern of spatial and temporal relations of groceries outlet location classified by class of business area and by regional market with other groceries outlet characteristics. This pattern of relations holds over an indefinite current middle run period for the group of retail establishments comprising the Hobart groceries trade. Different aspects of this pattern of relations have been described in Chapters four to seven[1], and have been summarized in Figures IV.1 to IV.8, V.1 to V.4, VI.1 to VI.4 and VII.3 and VII.4.

Two further conclusions emerge from an examination of all the different aspects of this pattern of relations which are summarized in Figures IV.6 to IV.8, V.4, VI.3, VI.4 and VII.4. Firstly, changes over space or through time in groceries outlet scale in Hobart seem to have most influence on changes in outlet location between different classes of business area, and between different regional markets. The increased outlet scale and profits which is afforded by sites in upper order business areas (N1, J1, J2) or by locations in outer (Moonah, Glenorchy, Sandy Bay, Bellerive) suburban markets is the main factor responsible for a change in groceries outlet location from inner to outer suburban markets, and from lower to higher order business areas. The latter change in location for the trade occurs through the attraction of new entrants predominantly to upper order areas, the preservation of at least some of the larger scale existing outlets in upper order centres, and the disappearance of at least some of the marginal small-scale competitors in lower order business areas (especially the lowest order classes, N3, N4, J4) as the trade areas of the largest competitors in upper order business areas overlap theirs.

The finding that variations in groceries outlet scale in Hobart is the critical factor affecting variation in outlet location is hardly surprising. But it does not mean that the influence of the other variables which have been included in this work can afford to be neglected. Nor does it support the geographic cliches that "retail establishments go where sales (demand, numbers of customers) are the greatest" and "retail establishments follow the distribution of the population, follow their customers," as having something more than an elementary didactic value.[2] For Figures IV.6 to IV.8, V.4, VI.3, VI.4 and VII.4, and the discussion of chapters four to seven, seem to show that a proper explanation and prediction of changes in outlet location depends upon a correct analysis of the precise causes of the variation in outlet scale and profits in different parts of a city. And in such an analysis it is of first importance to take into account the possible interactions of both outlet scale and outlet location with outlet competitive characteristics, outlet costs and efficiency characteristics, outlet price and non-price offers, and outlet customer and customer trip characteristics.

The second conclusion which emerges from an examination of the pattern of relations for Hobart's groceries outlets is that the nature of the pattern for the current middle-run period is very closely connected with the present state of eight important exogenous variables. Figures IV.6, IV.7, IV.8, V.4, VI.3, VI.4 and VII.4 show these to be the technology of groceries retailing (e.g. the possibility of using self-service techniques) (Figures IV.6, IV.7); the income level and mobility of the urban population (Figure IV.8); the spatial distribution of the urban population and of their household sizes, household age structures, and household car ownership rates (Figure IV.8); the organisational structure of the distribution of retailed goods from manufacturer, to wholesaler, to retailer, to consumer (Figure V.3); institutional restrictions on entrepreneurial behaviour (e.g. Trading hours legislation) (Figures VI.3, VI.4); the frequency distribution of urban households by income, size, age structure, number of fulltime employees and car ownership rate (Figure VII.4); intra-urban travel systems (Figure VII.4). and the alternative transportation modes available within the urban area

(Figure VII.4). There are some important implications for future dynamic longer-run studies of retail location which arise from the significance of these eight exogenous variables for the type of pattern of relations which will exist over any shorter middle-run period between retail location and the other hypothesized endogenous variables. These implications are outlined below[3] when the need for a dynamic theory of retail location is discussed.

Contributions to the Future Study of Retail Location (1) : The Future Development of Theory.

The generally successful testing of the two hypotheses in Chapters four to seven has permitted certain tentative conclusions[4] to be drawn concerning the future development of theory. The following conclusions seem particularly important, since they emerged as a result of the analysis in each and every chapter.

Need for an Integrated Theory

Firstly, there seems to be a need to develop a theory of retail location along the lines suggested by the two hypotheses, which would integrate current retail location theory, price and competition theory and marketing theory. At present, no single body of deductive theory embraces the pattern of interrelations of outlet location with respectively, outlet scale, outlet costs and efficiency characteristics outlet price and non-price offers, customer demands, and outlet competitive characteristics which are summarized in Figures IV.6, IV.7, IV.8, V.4, VI.3, VI.4 and VII.4,[5] and which were observed in the case of Hobart's groceries outlets. The need for an integrated theory along the lines suggested by the two hypotheses was particularly clearly shown in Chapter seven. Here it was found necessary to draw on elements of price and competition theory, location theory, marketing theory, and travel theory to determine the interractions between outlet location used as a long-run means of competition for revenue, and the variables which influence aggregate customer demand for a retailer's goods and services through their effects on either or both the demand by individual households, and the distances household members are willing to travel from their place of origin to an outlet (outlet average market area size).[6]

Deficiencies of central place theory. The need for an integrated theory was also clearly shown in each of Chapters four to seven during detailed discussions of the deficiencies which seem to be revealed in central place theory.[7] Central place theory is the most important body of retail location theory which is used by geographers. But it was found that, in all versions of central place theory, certain assumptions are made which are the reverse of the findings for Hobart's groceries outlets, and which lead to the failure of the theory to predict the whole pattern of relations of groceries outlet location and other variables in Hobart. The erroneous assumptions which were revealed and discussed in Chapters four to seven are:

(i) that identical market structures are faced the entrepreneurs of each and every outlet in each and every retail trade of business type,[8]

(ii) that a single normal scale of operations exists for all the outlets of a business type or trade; irrespective of their location; and that this threshold size[11] is defined by the point of unitary elasticity of a costs curve which is identical for all outlets within a trade and which is independent of their location;[9]

(iii) that each and every outlet within a particular trade or business type has an individual average market area size (range), which is not affected in any important way by its location, or its price and non-price offers, or the sort of competitive behaviour of its entrepreneur;[10]

(iv) that customers, in order to minimise their travel costs, will visit the nearest business area supplying the sort of good they require on single-purpose round trips from their home base;[11]

(v) that each outlet has a monopoly over its "threshold market area," that is, the area containing the minimum number of customers necessary to support it; there is no substantial overlaps of the market areas of competitors.[12]

All these assumptions follow from the initial assumption in central place theory of a given intuitively recognisable array of retail business types or trades; these business types do not compete with each other, and each contains a group of outlets whose members are not significantly different in their operational, competitive, customer and customer trip characteristics. The standard operational, competitive, customer and customer trip characteristics of the outlets of each group are the cause of the spatial distribution of the group.[13] The findings of this work are not in accord with this position.[14] For they suggest that any recognisable groups of outlets (e.g. supermarkets, groceries and general stores) emerge as business types within a trade not as a cause but as a result of the adjustments of outlet locations, together with other outlet characteristics, by entrepreneurs. These groups of outlets within a trade contain members whose locational and other characteristics are not similar but dissimilar; however, between group differences are significantly greater than the within group differences, and the groups are easily picked out by inspection in the field and by more objective standard statistical procedures. For a trade or a business type as a whole, there will be a considerable though orderly differentation of the locational and other characteristics of its members.

All these findings suggest that a theory of retail location will be inadequate if it commences like central place theory with the assumption of an intuitively recognisable array of business types or trades, containing reasonably homogeneous member establishments. A better theory would explain and predict both the emergence of business types within trades in the process of entrepreneurial competition for revenue, and the whole pattern of differences within each trade of outlet location, scale, competitive characteristics, price and non-price offers, costs and efficiency characteristics, and customer and customer trip characteristics.

Other Possible Requirements of an Improved Theory

Other requirements for an improved theory of retail location have also been suggested as a result of the study of Hobart's groceries outlets. First, in Chapter four, it was suggested that any new theory of retail location should take into account the sorts of variation which might occur in the local market structures which are faced by the entrepreneurs of a trade.[15] In particular, attention should be paid to the differences between the aggressively competitive, small group, oligopolistic market conditions faced by the entrepreneurs of the largest-scale outlets and the more imperfectly competitive oligopolistic markets faced by the entrepreneurs of smaller-scale outlets in lower order centres. It was also suggested that a game theoretic framework might be appropriate for any new theory of retail location, given the adoptive behaviour in competition for revenue by smaller-scale groceries outlets in local markets, in response to the larger-scale "competition leaders."[16] The possible need for a game theoretic framework was also supported by findings in Chapters five and seven, which contain descriptions, respectively, of the effects on retail location of the formation and confrontation of power groups of firms for retail buying and selling,[17] and of the use of location by the firm as a long-run strategy in competition for revenue.[18]

In Chapter five it was suggested that as a result of the importance of retail outlet costs for outlet location in Hobart, far more attention needs to be paid in any new theoretical work to the relations of scale, outlet costs structure and efficiency and outlet location. There has been perhaps an overemphasis in retail location theory on the association between retail location and customer demand, and particularly on the associations of retail location, the spatial distribution of purchasing power and least travel costs choices by customers of their shopping place.[19]

In Chapter six, it was suggested that the multiproduct-group, multiproduct, multigood nature of the retail establishment needs to be taken into account in any new theory. For it seems to be crucial in determining establishment prices, services and range of goods in different locations, and thus the takings, profits and success of outlets in different locations.[20]

In Chapter seven, it was suggested that any new theory of retail location may need to embrace all the important variables which affect the assessment by customers of both the costs and the advantages of travelling to alternative shopping areas. A new theory of retail location may thus need to use the assumption of maximum advantage (advantages - costs) travel by customers, rather than least costs travel.[21]

Finally, in each of Chapters four to seven, it was suggested that the hypothesized and verified relations and the observed pattern of relations for Hobart's groceries outlets (Figures IV.6-8, V.4, VI.3-4, VII.4) accentuate the need for a dynamic theory of retail location.[22] For both imply a systematic sequence of spatial and temporal changes in retail outlet location and other variables which can be predicted only by a dynamic spatial model. In addition, the hypothesized and observed pattern of relations for the current middle-run period appears to be highly dependent upon the present state of certain exogenous variables, for example, in the Hobart case, the state of retailing technology and intra-urban travel systems. Gradual changes in the exogenous variables, or spasmodic upheavals in them with technological innovations - for example, with the automation of retailing and the investigation of new modes of customer travel - may cause radical alterations in the pattern of relations of retail outlet location and other variables over the long-run. Ideally, therefore, a long-run dynamic spatial model seems to be required to explain and predict the different patterns of relations which may occur for individual trades over different successive middle-run periods with changes in exogenous variables. Such a long-run dynamic model would be "a theory of step-by-step adjustments as sequences in time," a "sequence analysis ..... explaining how each state is derived from a preceding one, and in turn, induces the next ..... (showing) how the conditions of equilibrium themselves are changed, .. (taking account of different) reaction lines (and) reaction patterns."[23]

It would seem a formidable task to construct a general retail location theory which would explain and predict, for each retail trade, a whole pattern of relations like the one hypothesized and discovered for Hobart's groceries outlets, and which would meet all the preceding requirements. However, the regularities which appear in the data for Hobart's groceries outlets suggest that such a theory might need to be devised for the study of retail location. For, in Hobart, an orderly, predictable, if complex system appears to operate over time and over space for the production of retail grocery goods and services, to meet the differing needs, income and travel habits of different portions of the urban population. It is not the task of the present work to attempt to construct such a new theory of retail location; it is sufficient for the purposes of this thesis to suggest, as above, possible future lines for the development of theory on the basis of the findings of the study of the locational structure of groceries retailing in Hobart.

Contributions to the Future Study of Retail Location (2) : Future Empirical Work, Including Planning

Possible lines for future empirical work, including planning, may also be suggested from the findings of the study of the locational structure of groceries retailing in Hobart.

Suggestions for the Study of Current Trends in Retail Location in Western Cities

The hypothesized and observed patterns of relations, which have been summarised in Figures IV.6, IV.7, IV.8, V.4, VI.3, VI.4 and VII.4, have been used in Chapters four to seven to advance for further enquiry some possible causes and effects of two important trends in retail location in Western cities.[24] These trends are:

(i) the decline but not the disappearance of the small isolated convenience goods store and marketing centre, and the rise of regional shopping centres with large-scale convenience goods establishments and firms (change in outlet locations from lower order to higher order business areas);

(ii) the change of the locations of the outlets of many trades from the inner city to the suburbs.

Figures IV.6, IV.7, IV.8, V.4, VI.3, VI.4 and VII.4 have been used to suggest how gradual changes in the locations of the outlets of a trade from lower order to higher order business areas and from inner suburban to outer suburban markets, maybe caused by, and effect, predictable changes in outlet scale, in outlet costs and efficiency, in outlet price and non-price offers, in customer demand for outlet goods and services, and in outlet competitive characteristics. The possible causes and effects of both sorts of change in the locations of the outlets of a retail trade need further investigation for other trades in other cities.

In Chapters four to seven, Figures IV.6, IV.7, IV.8, V.3, VI.3, VI.4, VII.4, have been used as well to suggest how, within the city, the current pattern of change in retail locations (as well as in other retail outlet characteristics) may be dependent upon the present states of eight important exogenous variables: the technology of retailing: the income level and mobility of the urban population: the spatial distribution of the urban population and of their incomes, household sizes, household age structures, and household car ownership rates; the organisational structure of distribution, institutional restrictions on entrepreneurial behaviour, the frequency distribution of household by income, size, age structure, number of full-time employees and car ownership rate; intra-urban travel systems; and the alternative transportation modes available within the urban area. The significance of the present states of all these exogenous variables for current patterns of change and retail location needs to be further investigated for many different trades in different cities. In particular, the degree of stability or possible alterations in any current pattern of relations between outlet location and other outlet

characteristics seems to require assessment, in the light of likely radical changes in at least some of the exogenous variables.[25] Such likely changes include, for example, the changes in intra-urban travel systems which will be consequent upon the implementation of Metropolitan Area and C.B.D. Transportation and Parking plans, and the changes in institutional restrictions on entrepreneurial behaviour which will take place with more effective Restrictive Trades Practices legislation or the repeal of Government Trading Hours legislation.

Other Topics for Empirical Research

Several other topics may be put forward for further investigation as a result of the study of the locational structure of groceries retailing in Hobart. From the results of Chapters four to seven, it appears that certain processes might have a particularly important influence on the locations of the establishment of a retail trade. These are: the nature of the spatial competition for revenue which may occur in chained oligopolistic local markets for retailed goods and services;[26] the ways in which retail outlet location may be used as a means of competition for revenue together with price, service and range of goods, to alter the travel patterns and expenditures of customers;[27] the nature of competition between retail enterpreneurs as buyers of goods for resale and of advertising services;[28] and the ways in which price and non-price offers are devised by enterpreneurs of multiproduct group, multiproduct and multigood retail establishments.[29] It was remarked in Chapter one that, to date, very few studies have been made of these processes, or of the ways they may affect the locational structures of different retail trades in different areas.[30] Further studies of them would therefore appear to be timely.

Suggestions for Planning

The study of the locational structure of groceries retailing in Hobart also has implications for the future work of public and private agencies which plan for or control retail firms. As a result of the analysis in each of Chapters four to seven, it was suggested that it might be desirable to investigate alternatives to the normal rules of thumb still used to plan the locations and sizes of outlets of a retail trade within a city, for example, the use of a single metropolitan area floorspace: shop ratio and/or population: shop ratio to determine the optimum number, size and distribution of shops of a particular type.[31] The results of the analysis of the locational and other characteristics of groceries outlets in Hobart suggest that it might be desirable to investigate the possibility of planning for a diversity of scales of outlet in a trade in many different types of location, with differing costs and efficiency characteristics and profit levels, and differing price and non-price offer combinations. The planned pattern for any trade could be based on a 'natural' pattern of complex but orderly covariation in outlet location classified by business area class and regional market, outlet size, and other operational characteristics, which the results of the study of the Hobart's groceries trade suggests emerges within a city in response to the needs and travel habits of different socio-economic groups within the urban population (Tables 4.7, 4.8, 4.9, 5.11, 6.8 and 7.5).[32]

The results of the study of Hobart's groceries outlets also suggests that many more variables might need to be taken into account by planning authorities when they attempt to evaluate schemes for retail establishments. For example, it might be necessary to pay more attention to the effects of variations in local market structures on the sizes and other operational characteristics of outlets before making decisions as to the possible success of establishments in alternative planned locations. In addition, cognisance may need to be taken of the fact that plans to regulate the competition of retail establishments, plans for retail location, and plans affecting the routes and modes of customer travel, might not be able to proceed in isolation. The study of Hobart's groceries outlets and Figures IV.7, IV.8, VI.3, VI.4 and VII.4 show how there will be predictable interrelations at least within one retail trade, of the competitive characteristics, price and non-price offers, locations, and customer travel patterns of retail establishments.[33]

The results of this study thus seems to offer concrete evidence in support of those urban planners in both the public and private sectors who, during the past five to ten years, have called for more 'adaptive' planning,[34] with much greater use of information about the variables involved in the decisions of the entrepreneurs and consumers of the product of each of the many types of urban enterprise, with much less attention to aggregative types of analysis, and with much less of the customary emphasis on such public interest considerations as health, convenience, economy and safety. The following quotation from the 1965 Special Issue of the Journal of the American Institute of Planners on Urban Development Models clearly reflects this point of view:

..... "Both the process of designing better plans and the process of evaluating plans depends very deeply on a detailed understanding of the way in which a metropolitan area functions and grows. This is necessarily so because the consequences, direct and indirect, of planning decisions, are the most important elements entering into an evaluation, while changing these consequences by changing proposed policies is a central aim of planning design ..... problems of retail location ..... can be stated and modelled separately ... As even a cursory review of this Journal will suggest, our relevant knowledge of these manifold aspects of urban location is pitifully small, and to place it on firm ground there is obvious need of additional information and additional knowledge ... There is a growing feeling ... that models which deal in the first instance with aggregated behavioural data must ultimately yield to models which deal in the first instance with the behaviour of individual decision units."[35]

It seems that, even if only to assist in the construction of new types of model which will be fundamental to planning research by public and private authorities, further studies of many retail trades in many cities will need to be made along the lines of the study of Hobart's groceries outlets.

Contributions to the Future Study of Retail Location (3) : The Application of Statistical Methods

In conclusion, an assessment may be made of the contribution of the study of the locational structure of groceries retailing in Hobart to the application of statistical techniques to the analysis of retail location. Perhaps the most successful contribution has been the development of the two locational classifications, namely the N and J hierarchies of business areas and the regional markets, to enable the handling of the troublesome location variable in a detailed statistical study of the locations of retail outlets.[36] It is true that the classification procedures which were used sacrificed sophistication and objectivity for ease, and that ex post it appears that similar order N and J classes of business area do not represent different classes of location and could have been combined. However, the significance of the results which have been obtained by employing the two locational classifications suggests that future use could be made of the classifications elsewhere. In this work, the classes of outlet location have provided a successful means, firstly, of stratifying the shopping outlets of a trade for the purposes of selecting samples for entrepreneur and customer interview surveys;[38] and secondly, for applying simple statistical procedures to the data collected (e.g. X^2 and analysis of variance tests of the associations of outlet location and other outlet characteristics).[39] The use of hierarchies of business areas and regional markets, both of which were suggested by the results of central place studies,[40] also links this work with the main body of research into retail location in geography.

Despite the usefulness of the two locational classifications, it must be admitted that the statistical procedures which have been employed here do not make a substantial contribution to a more rigorous methodology in the study of retail location. For they are crude adhoc applications of the standard statistical theory and techniques which have been developed in other fields to the particular problem of the analysis of retail location in geography. Such crude adhoc applications are particularly evident in the design and drawing of the two - phase sample of Hobart's groceries outlets,[41] in the ways in which the data for this sample was used to test the hypotheses (and especially in the ways X^2 and variance analyses were applied to the sample data),[42] and in the construction of outlet price indices to help determine the variations in outlet price levels in different locations.[43] But it is difficult to see how 'ad hoc' applications of statistical procedures can be avoided in the initial phase of the application of more quantitative and objective techniques of analysis to new research problems. In this phase, the gaps become evident in the statistical theory and method which may have served well in other fields, and ad hoc methods have to be adopted. The major gaps in current statistical theory and method which became evident in this work, and which are largely responsible for the disappointing lack of rigor in the methods of analysis, were:

(i) the lack of sampling theory and methods to help determine an appropriate type of sample, sample size and formulae for estimators in the case where only a small sample ($N<30$) can be selected, where the sample is for the purposes of making estimates of means, coefficients of variation or proportions for a large number of the characteristics of the objects in the sample, and where the variances of the characteristics are not known ex ante;[44]

(ii) the lack of sampling theory and method to help determine ways for, and the accuracy of, the application of standard statistical tests (e.g. X^2 and F tests) to data for different types of sample;[45]

(iii) the lack of statistical techniques which can be used to determine the interrelations between a large number (e.g. 90-100) of attributes and variables, given only a relatively small number (e.g. 49-90) of observations for each.[46]

Since, in the study of retail location in geography at least, the application of quantitative methods often seems to require the collection of accurate data "in the field" about many characteristics of small samples of stores or customers or both,[47] the filling in of the areas in statistical theory and method would seem a valuable future line of research for the mathematically minded.

Finally, behind the study of Hobart's groceries outlets and limiting the validity of all the conclusions reached in this work, lie some of the great unresolved philosophical and methodological issues at the heart of the social sciences - of the predictability versus the unpredictability of human behaviour; of placing weight on the typical, general or normal features of human groups (monothetic approach) versus placing weight on the unique features of each group and its members (idiographic approach); of the research worker's desire for order leading to perceptions of order where there may be more. Walter Wier provides a timely reminder that the existance of these issues should not be overlooked when the conclusions are presented of a 'scientific' study of man's selling and buying activities.

"A market is not a single cohesive unit; it is a seething desparate, pullulating, antagonistic, infinitely varied sea of differing human beings - everyone of them as distinct from every other one as fingerprints; every one of them living in circumstances different in countless ways from those in which every other one of them is living."[49]

1 pp. 226-227; 228-230; 267-271; 311-340; 382-408; 437-456.

2 As for example, in University texts in Economic Geography, such as McCarty and Lindberg (1966, 108-111, 113, 104, 133-146, 147-153).

3 p.470.

4 pp. 272-274, 341-344; 409-411; 457-460.

5 pp. 272, 341, 409, 457-8.

6 pp.448-456.

7 pp. 273, 342, 410, 458.

8 Chapter 4, pp. 272.

9 Chapter 5, pp. 342.

10 Chapters 6, 7, pp. 410, 458.

11 Chapters 4, 7, pp. 273, 457.

12 Chapters 4, 7, pp. 273, 458.

13 See especially McCarty and Lindberg (1966, 120-121); Garrison et al. (1959, 54-56).

14 pp. 273-274; 342-3; 410, 459.

15 pp. 273-274.

16 loc. cit.

17 pp. 323ff.

18 pp. 437ff.

19 pp. 341-344.

20 p.409.

21 p.458.

22 pp. 274, 344, 411, 460.

23 Machlup (1963, 18, 20-21).

24 pp. 274-275; 344-346; 411-413; 460-463.

25 This statement holds in the current pattern of relations which has been identified in this thesis for Hobart's groceries outlets. The change which seems most likely to distort this pattern is the 1967 Amendments to the Tasmanian Government's Trading Hours Legislation.

26 Chapter 4, pp. 236-242.

27 Chapter 7, pp. 437ff.

28 Chapter 5, pp. 323ff.

29 Chapter 6, pp. 367, 369, 379.

30 pp. 40-41.

31 pp. 274-275; 346, 413, ~~463~~

32 See also Boyce and Brown (1963, 3): "A final major barrier to the proper assessment of land use (for planning purposes) is the practice of insisting on too-simple causal relationships among the many variables in land use ... most land use types have the ability to substitute one factor of production for another. That is, the same type of land use may be able to glean the same net profit in two different locations by changing its mode of operation (note the shoe store example previouslycited) ... For this reason it is not at all clear whether there is any "best place" for every given type of land use."

33 This paragraph implies that any kind of planned control of retail establishments must be approached primarily as an economic - geographic problem. Without undue interference with the process of competition, some spatial distribution of outlets within the metropolitan area and some spatial market structure must be determined which represents a satisfactory compromise between the desire and need of retail entrepreneurs to make profits, and the desires of consumers to obtain products at the prices, with the services and variety of goods, and with the degree of convenience which they prefer. This approach, which is not at all a common one, seems to be heralded in Ford and Thomas' Shops and Planning, Second Report of the Southhamptonshire Survey (1953, 43). "It must be emphasised that a decision on the appropriate number of shops is an economic judgement, not just a physical planning judgement, and whatever modifications may be introduced later, the grounds for initial decision must be economic --- The task of the physical planner is to anticipate the probable development of industry and so to guide its location as to promote efficiency, health and the preservation of amenities. Decisions on what should be the scale and organisation of an industry, like retailing, is a very different matter."

34 Foley (1963, 57).

35 Harris (1965, 92-93).

36 ~~Chapters 7, 8, especially pp.~~ Chapter 2, 3.

37 Footnote 20, Chap. 4.

38 Chapter 3, pp. 184-185.

39 Chapter 3, pp. 204-205.

40 Chapter 2, pp. 47, 110,

41 pp. 178-192, 200-213.

42 pp. 200-213.

43 p. 351.

44 pp. 178-192.

45 pp. 200-213.

46 p. 202.

47 e.g. Berry, Barnum and Tennant (1963); Mayfield (1963).

48 These issues are reflected in geography in the writing, for example, of Bunge (1962, 2-13).

49 (1960, 65).